News of the California Association of Criminalists • Fall 1996

The CAC News

The President's Desk

Pete Barnett

The Efforts of Individuals

Aside from being a forum where cross-examination is not possible, this column provides an opportunity for the President to challenge, cajole, encourage, and incite the membership. It is difficult to choose from among the many topics of interest, the topic to address in a column. I have considered several topics over the past few weeks: How should we as individuals and as a profession respond to the efforts of the DNA Advisory Board trying to tell us how to run our laboratories and qualify our staff? How can the resources of the A. Reed and Virginia McLaughlin Endowment be used most efficiently for the benefit of the members of the CAC? How can the CAC most effectively meet the challenges to our work in the trial and appellate courts? How can the CAC promote legislative or popular initiatives designed to provide more resources for the forensic science enterprise? How should the CAC respond to popular misconceptions or misrepresentations of our work or our roles in the justice system? Why do people say "forensics" when they mean "criminalistics" or "forensic science"? How can any or all of these matters be effectively addressed by the dedicated criminalists who serve the CAC on the Board of Directors or as committee chairs and members?

Any one of these activities requires the efforts of individual criminalists—people who believe that part of their occupation, and their employee's job, is to participate in professional activities. Because we have chosen the profession of criminalistics as our occupation (rather than just taken a job in a crime lab), we have an obligation to participate in those professional activities which serve to increase our technical knowledge of the "department of learning or science" called criminalistics as well as to learn the effective "application to the affairs of others" of our knowledge and skills. As individuals, we have a responsibility to maintain our professional skills and exercise our professional obligations. In fact, one needs only to consider the regulations in Title 17, the appellate court decision in the case of *People vs. Barney*, or the O.J. Simpson case to see the result of the profession not effectively applying our learning and science to the affairs of others.

How, then, can individual criminalists become involved in activities to promote our "department of learning and science" and its "application to the affairs of others?" It seems to me that this is most effectively accomplished through professional organizations which can represent the collected voices of criminalists. There are numerous organizations which provide

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The CAC News

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On the cover...
Circling the globe are featured postage stamps depicting various aspects of microscopy. These samples are from the collection of Edwin L. Jones, Jr.

On this page: A test subject burns under the watchful eyes and gaze of workshop members at the CAC Spring Seminar in Milpitas.

The CAC News is published four times a year (January, April, July, and October) by the California Association of Criminalists, a non-profit professional society dedicated to the furtherance of forensic science in both the public and private sectors. Please direct editorial correspondence to the Editorial Secretary.

Notice to Contributors
We publish material of interest to our readers and are pleased to receive manuscripts from potential authors. Meetings and course announcements, employment opportunities, etc. are also solicited. Advertisements are also accepted, although a fee is charged for their inclusion in *The CAC News*. Please contact the Advertising Editor for further information. Because of the computerized typesetting employed in *The CAC News*, submissions should be made in the form of MS-DOS compatible files on 3.5 inch floppy disks or by e-mail (70632,77@compuserve.com). 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 to illustrate the author's preference for special emphasis. Graphics, sketches, photographs, etc. may also be placed into articles. Please contact the Editorial Secretary for details. The FAX number for the Editorial Secretary is (408) 298-7501. The deadlines for submissions are: December 15, March 15, June 15 and September 15. **Nonmember subscriptions** are available for $25 domestic $30US foreign—contact the Editorial Secretary for more information.

Fall 1996

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Late Show

Dr. John DeHaan discusses the collection of trace evidence on a *Discovery* program, "Arson: Clues in the Ashes." The show, which originally aired in June, is expected to be rebroadcast.

Second TWGMAT Results

The Second Meeting of the Technical Working Group for Materials Examination (TWGMAT) was held at the FBI Training Academy in Quantico,VA on April 10-12, 1996.

The TWGMAT group has expanded to include glass analysis along with paint and fibers. Surveys will be sent out soon by the paint and glass groups to laboratories around the country to query what types of analyses are done with paint and glass evidence. These surveys are designed to obtain information from the analysts who actually process the evidence in question so that when the guidelines for techniques are written, they will reflect all of the various processes used in the field. The fiber group guidelines are in the final stages of revisions. Two of the guidelines, the QA/QC document and the evidence collection document will be made into universal, or umbrella documents which will cover the QA/QC and evidence collection of all the materials which are included in the scope of TWGMAT (e.g. paint, glass, fibers, and other trace materials).

The paint analysis group is completing revisions to the ASTM E 1610-94 document. These revisions will be sent to ASTM in the hopes that one overall paint analysis guideline can be used by the forensic community as a starting point for paint analysis. Guidelines for individual techniques (e.g. Infrared analysis, SEM/EDX, etc.) are slated to be written upon receiving results from the paint surveys.

The glass analysis group has developed a survey, identifying a number of goals which they would like to accomplish. These include "round-robin" exercises, developing a consensus on the value of density determinations and elemental analysis of glass composition, and developing a literature database. Another goal is the writing of guidelines for the training of glass examiners and interpretation of glass evidence. (The paint and fiber analysis groups have already developed literature databases.)

For more details on TWGMAT please contact **Faye Springer** or **Lynne Herold** or **Marianne Stamm**. You may also contact Ed Bartick at the FBI FSTRC, (703) 640-1537.

CAC Financial Report

The Annual report for FY 95-96 is presented for review.

On June 30, 1995, the A. Reed and Virginia McLaughlin Endowment fund stood at $761,224 and, after deductions for projects, now stands at $912,551. Although there are no guarantees for next year, this represents a good return on our investments.

As for other accounts, the Ed Rhodes Endowment Fund is currently at $11,056 and the Merchandise Account balance as of June 30, 1996 was $1,608.16.

—M. Parigian, Treasurer

Financial Report—General Association Account
Account Balances, July 1, 1995 to June 30, 1996

Cash Balance July 1,1995		$44,655.79
INCOME		
Interest	$891.94	
Meetings	2,088.43	
Seminars	54,373.26	
Membership dues	35,725.00	
Membership applications	3,360.00	
Certification (ABC)	2,572.00	
Advertising	325.00	
Endowment income	234.62	
Total income	99,570.25	99,570.25
EXPENSES		
Travel	$5,045.69	
Printing	11,320.12	
Postage	2,220.23	
Supplies	1,201.42	
Bank fees	883.34	
Accounting service fees	495.00	
Awards	643.21	
Meetings	1,791.02	
Seminars	41,541.05	
ABC support	400.00	
Memorial donations	10,700.00	
Endowment Exp., admin.	1,236.62	
Journal	24,886.68	
Phone	292.70	
Refunds	525.00	
Newmember	166.17	
Consultations	3,676.75	
Other	250.00	
Total Expenses	107,275.00	(107,275.00)
Cash Balance June 30, 1996		36,951.04

1995 Endowment Fund Grants

IAFS Seed Money	$1,500
Court Tst/Clear Com	$2,070
Report Writing	$1,745
Courtroom Presentation	$2,312
Firearms Trajectory	$2,060
Micro Exam of Sex Assault	$2,330
Fire and Expl Invest.	$2,000
Adv. Microscopy	$3,600
Condom Brand Data	$2,500

ABC Announces New Category

As of January 1, 1997, the American Board of Criminalistics will have a new category, that of "Affiliate."

Affiliates will be those individuals who have passed the GKE (General Skills Examination) but who have not yet completed the two-year experience requirement for Board Certification. Affiliates may become Diplomates upon completion of the experience requirement.

For some people, taking the GKE examination early in the certification process may be to their advantage. Others, particularly those with no precious exposure to criminalistics, would be better advised to take the GKE later in the certification process in order to prepare for those areas in which they might be expected to be less knowledgeable.

ABC Affiliates cannot claim "Board Certification." Certification comes only with Diplomate or Fellow status.

The GKE will be given at each CAC Seminar, at the American Academy of Forensic Sciences meeting in February of each year, at meetings of other regional organizations and at other times and places arranged with the ABC.

Any CAC member interested in sitting for the GKE should fax a request to Connie Miller, ABC Registrar, at (719) 636-1993 or write her at P.O. Box 669, Colorado Springs, CO 80910.

Incidentally, CAC members might wish to know how we stack up against other states in the area of certification. California currently has 109 ABC Diplomates. The next highest, with 34, is Georgia, which requires certification for advancement in the state lab system. New York has 31, Washington has 29. Twelve states have only one and 19 states haven't a single ABC certified person.

—John Thornton
CAC Representative to the ABC

No Junk Mail

Forens-L is an unmoderated discussion list dealing with forensic aspects of anthropology, biology, chemistry, odontology, pathology, criminalistics, etc. Subscribing to this list means that you will receive e-mail copies of all the messages sent between subscribers and be allowed to respond to them yourself. The messages appear in the "In-Basket" of your e-mail service provider (CompuServe, AOL, etc). To subscribe, send a message to

MAILSERVE@ACC.FAU.EDU

with this request in the message body:

SUBSCRIBE FORENS-L Your Real Name

Northern Section Reports

The Oakland Police Department hosted the August 15, 1996 dinner meeting in Jack London Square. Forty-seven individuals attended. The guest speaker for the evening was Mike Prodan of the California Dept. of Justice Bureau of Investigation. Mr. Prodan specializes in the interpretation of "behavioral" clues left at crime scenes and his talk was focused on criminal investigative profiling. Only criminalists could look at slides of crime scenes and enjoy a chocolate torte and poached pear-frangipane tart dessert simultaneously! Hats off to **Jennifer Hannaford** and **Curtis Sato** for organizing a wonderful dinner meeting.

The Serology/DNA, Firearms and Drug study groups all convened prior to the dinner Meeting. The Serology/DNA study group, chaired by **Jennifer Mihalovich** met at the DOJ DNA Laboratory in Berkeley with 35 individuals in attendance. **Terry Spear** of CCI presented relevant topics; pertaining to a PCR-based lab such as the effectiveness of bleach and the Stratalinker/UV in destroying DNA templates; the direct amplification of biological samples and detecting residual DNA types in small samples from cleaned surfaces. Terry recommended increasing the concentration of bleach from 10% to 20% for decontamination, or purchasing products currently available from numerous vendors such as "DNA Away" which completely inhibited DNA templates. Residual DNA types were commonly detected in test tube racks, the thermal cycler cover and on floors. A regular washing and cleaning regimen was recommended for those trouble spots. **Tom Winder** also presented concordant data on the effectiveness of uv light in destroying template DNA. Results indicated that long exposure to uv light was partially effective on DNA templates. **Mary Gibbons** presented an update on the DNA Advisory Board. She suggested we become actively involved by voicing our opinions in writing on policies being developed by the Board.

The Firearms and Toolmark Examiners Study Group, chaired by **R. Thompson**, met at the ATF, Laboratory in Walnut Creek with 19 in attendance. Topics presented included the following: highlights of the recent AFTE meeting in Milwaukee, Wisconsin; an update on the progress of the work by **Ron Nichols** and **Dr. Thornton** on the Firearms Evidence Sourcebook on CD ROM; level of interest for the FBI's traveling GSR class; preliminary results on the Nichols/Sato/Thompson study regarding bullets from consecutive riflings with microscopic/IBIS; and the IBIS BRASSCATCHER performance study. The meeting ended with the "bring your own slides" presentations. R. Thompson plans on having this study group meet quarterly on Thursday afternoons. The next Meeting will be held at the ATF laboratory.

The Drug Study Group, co-Chaired by **Mary Trudell** and **Jean Arasc**, Convened at the Oakland Police Department with a total of 24 attendees. **Roger Ely** from the DEA Western Lab was the guest speaker. Roger shared his expertise on the subject of amphetamine. He explained why we are seeing it rather than the usual methamphetamine. Roger talked about the manufacturing processes that results in amphetamines as the major product or as an impurity in the methamphetamine product. He also discussed the differences in the penalties for the two products and the increase in the use of both. Roger also supplied us with some simple and useful methods of separation and identification using IR and derivatives, Jean Arasc passed out a questionnaire in the hope of finding the most convenient times and subjects of interest for future meetings.

—Pam Sartori

Southern Section Checks In

June 25• San Bernardino Sheriff's SID hosted a dinner meeting in Ontario. At the request of many who heard about his excellent presentation, **Joe Hourigan** again presented a "Pictorial Essay on the Charlie Chaplin Paternity Trial." Three study groups also met at the Royal Cut Restaurant: *Blood Alcohol* (**John Simms** and **Joe Jaing** co-Chairs)—Department of Health Inspections, PAS device, Blood and urine alcohol concentration ratio, NaF as preservative, Video tapes of Canadian .08 driving study were made available. *Drugs* (**H. Evans** for **Jim Stam**)—MDA/MDMA et. al. showing encountered increase of hallucinogens (LSD, mushrooms) after Grateful Dead concert, cland. labs up at OCSO, and Riverside DOJ. *Forensic Biology* (**Mary Hong** and **Erin Riley** co-Chairs)—**Margaret Kuo** discussed FBI STR standardization project and DNA Advisory Board update, **Ruth Ikeda** and **Mary Hong** presented validation work on

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Jobs • Meetings • Courses

NWAFS / UFSA Joint Fall Meeting

The Fall Joint Meeting between the Northwest Association of Forensic Scientists and the Utah Forensic Science Association is planned from Sept. 30 through Oct. 4, 1996 in Salt Lake City, Utah, for a $95 registration. This is the first time that NWAFS meeting has been held in Salt Lake City. Workshops are on a fee-basis, and are not included in the cost of the general meeting.

Highlights: *Recovery of Buried bodies.* Hands on training involving buried plastic skeletons, search methods, grave detection, evidence recovery, and documentation necessary for the successful prosecution of a murder case.

Collection and Preservation of Footwear Impressions Through Casting. Proper casting techniques of footwear/tire track impression evidence. The class will guide the student through: 1) a historical background of casting techniques, 2) How the casting material is made, 3) Why casting is necessary, 4) Various casting materials and techniques and 5) cleaning procedures.

Identification and Documentation of Bloodstain Patterns. The recognition of various bloodstain patterns will help guide each participant in the discovery of items that may or may not be relevant. In addition to the identification of bloodstain patterns, each individual will be taught how to properly document this evidence so that it may be used later for reconstruction purposes and court room exhibits.

Toxicology Workshop: Results of a study, Laboratory Evaluation of Drug Evaluation and Classification Program: Ethanol, Cocaine, and Marijuana. The study was used to determine the validity of the Drug Evaluation and Classification (DEC) program used by police agencies, and also to determine the accuracy of trained police DRE's in detecting whether subjects had been dosed with ethanol, cocaine or marijuana. Dennis Crouch, Center for Human Toxicology, U. of Utah, will present plasma pharmacokinetic data obtained from the DEC study described above. Paul Hiatt, Utah Highway Pat., and program coordinator for Utah's DRE officers, will discuss the DRE program especially as it is used in Utah.

Arson workshop: Interpretation of Chromatograms in Arson Analysis. Interpretation of chromatograms in arson analysis. ASTM methods E1387-95 and E1618-94 will be reviewed. Common substrates for fire debris, pyrolysis by-products and maybe a few head scratchers will be looked at.

Firearms Investigation: Expose the forensic scientist to many of the clandestinely fabricated firearms that are present on the street. The student will also be exposed to both legitimately and clandestinely manufactured firearms suppressors. *Identification of altered firearms.* October 2 (8 hrs). This training session will expose the forensic scientist to assorted types of semi-auto firearms and the possible ways of illegally converting to full-auto fire. Areas to examine for tampering and evidence of tampering will be emphasized.

Chemistry Symposium: A. Intermediate Mass Spectral Interpretation. Covers two common mechanisms of decomposition responsible for the fragmentation in mass spectra. The concepts of alpha and inductive cleavage are introduced and applied to structure determination for a wide variety of organic compounds and classes including esters, ethers, amines and others. *NIR FT-RAMAN For Forensics.* Learn how NIR FT-RAMAN compliments FTIR by elucidating molecular structure invisible to infrared and generates Raman spectra of a variety of forensic samples. Generating raman spectra with minimum sample preparation and special problems such as heating or fluorescence will also be covered. *Application of Microcolumn Separation Techniques in the Analysis of Drugs of Abuse.* Operating principles behind the various microcolumn separation techniques will be described, and their strengths and weaknesses for the analysis of drugs of abuse will be discussed. Characteristics of interest include sensitivity, reproducibility, accuracy, speed of analysis, and the ease of use. The interfacing of these techniques to mass spectrometry will be discussed because of the important role of mass spectrometer detection for positive identification of target drug analysis.

Forensic Biology Symposium: Population Genetics and Forensic Statistics/Issues Workshop. Summary of basic principles of population genetics. The processes that contribute to gene frequency variation in populations will be outlined. Basic probability concepts and statistical testing procedures will be explained. Potential complications will be discussed. The extent of within and between race genetic variation will be treated, and implications for using the product rule will be discussed. Discussion of several hot topics including the NRC's new recommendations and clarifications report. Update on the DNA advisory board, TWGDAM's activities and any interesting, recent legal issues or decisions. *Advanced DNA Methods Training.* Implementation of DNA technologies and use of GeneAmp Polymerase Chain Reaction (PCR) process for human identification purposes. In particular, the AmpliType PM+DQA1 validation, development of new marker systems, fluorescent-based STR amplification, gel electrophoresis, and capillary electrophoresis methodologies will be discussed. *DNA Interpretation Workshop.* Discussion of interpretation issues relating to both RFLP and PCR (PM + DQA1, D1S80 and STR's) DNA typing methods. Special areas of emphasis include: mixtures, degradation, contamination and their effects on the analyst's final conclusions.

The seminar will be held at the Quality Inn City Center, 154 West 600 South, Salt Lake City, UT (800) 521-9997. Contact: Jay Henry, Utah St. Crime Lab 4501 South 2700 West Salt Lake City, UT 84119. (801) 965-3870, FAX: (801) 964-4544

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Ed Jones' Face Game "California Originals"

Answers inside back

Raymond Davis

The "Dulcet Moment"

This term was first coined by the eminent physiologist Dr. Helmut Brest in 1897 at the University of Leipzig, Germany. His esoteric study of morphism in nature led him to search for other expressions of this phenomena in human development. His basic premise was twofold: First, to rid the science of misconceptions and obfuscation, and second, to provide a clear understanding of the characteristics and nature of change encountered in traumatic or profound experiences. These observed changes were termed a "Dulcet" experience. The term was originally found in an old Flemish manuscript by the mathematician Pierre DuMont and its literal meaning today is "duality". The moment a person experienced this duality he (or she) was said to experience the Dulcet Moment. Dr. Brest often recorded in his impressive notes the profound psychological and physiological responses which occurred in his patients immediately following the experience.

Soon other researchers in the field who were aware of Dr. Brest's work referred to this "new" event as the Dulcet Moment. Recognition, insight and change were the markers researchers looked for in order to record the transformation which resulted from the Dulcet Moment. There was a great deal of excitement in the profession just to have the possibility of observing a patient undergoing the Dulcet experience. Since they often occurred away from the hospital setting and without warning, frustrated medical researchers began to contrive simulations whereby the patient might have these experiences on "cue". Soon elaborate and provocative scenarios were devised and unsuspecting patients were confronted with them. The results were not always what the researchers expected nor intended. One arthritic patient, a 56 year old nurse, Olga Breem, suffered a massive stroke and died after undergoing a convoluted and tiresome ordeal in order to bring about the Dulcet Moment. Shortly thereafter, a group of renowned scientists began to set some standards of conduct to ensure against injury and death of volunteers. The work continues to this day, mainly at the larger medical universities and always in a clinical setting.

What does this work begun almost one hundred years ago have to do with criminalistics or forensic science? Not a damn thing. It just goes to show you that if you put enough big words and names together you can hold someone's attention for at least two paragraphs. Although this is a work of fiction and took me just a few minutes to write, I believe this is how jurors sometimes see our expert testimony. Gas chromatography, infrared spectrophotometry, morphological characteristics, ninhydrin reagent, energy-dispersive x-ray analysis, etc. are terms we throw out during our testimony with impunity. And if we are not careful, I guarantee that unclear, confusing testimony with big technical words thrown in, will cause jurors to experience the Dulcet Moment— a desire to leave their bodies and float out of the courtroom.

* * *

The folks who print the *CACNews* deserve a special mention for all their hard work under deadline pressure. Chuck, at Fleming's Letter Shop in Oakland, is always ready to lend his considerable talent in putting together a polished, thoroughly professional publication.

Raymond

From the Reader

ASCLD Committee should be certified

Editor:

I believe in the concept of proficiency testing. There is ample precedent for it outside of the forensic community (e.g. every time a doctor orders a test on someone, the sample is analyzed by an extensively proficiency tested medical laboratory). I had my doubts about how it would transfer to criminalistics, but after experiencing the process, and having benefitted from the interaction, I am a convert. However, that does not mean there is no room for improvement.

In reviewing the Final Report on Collaborative Testing Services (CTS) Proficiency Test 9507 (fiber analysis), I couldn't help noticing the high number of respondents who expressed their dissatisfaction with the test (including myself). The test was essentially a comparison of animal hairs, including a reference sample from a Golden Retriever. Most of the issues raised involved this standard; since it was clipped (not pulled) from a single area on the dog, it was of poor quality. Not having assembled large proficiency tests, I grant that I am unaware of the logistical nightmares which no doubt permeate the process. Yet, an appropriate reference sample should be a prerequisite in the design of any test.

What troubles me most about this situation is that we are being judged by others based on our proficiency test results. As an American Board of Criminalistics (ABC) Fellow in both Drug and Fire Debris Analysis, I do not take this lightly. Of course, ABC has Proficiency Review Committees, consisting of specialty certified criminalists, who are the final arbiters on whether or not a particular answer is acceptable. Nevertheless, properly designed tests are essential, and that duty falls to CTS in most cases.

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Photo credits: (Table of Contents) This issue: Glen Simpson, Last issue: Ken Din, both of Santa Clara DA's Lab.

Out of the Blue

by Mark Hansen

If Michael H. West had stuck to what he presumably does best, he might not today be regarded by much of the scientific community as the dental equivalent of now discredited footprint expert Louise Robbins.

Robbins, who died in 1987, was a college anthropology professor whose chief claim to fame was her apparent ability to match a footprint on any surface to the person who made it.

The trouble with Robbins, who appeared as an expert witness in more than 20 criminal cases in 11 states and Canada during a 10-year period, is that her claims have since been thoroughly debunked. (See "Believe It or Not," June 1993 *ABA Journal*, page 64.)

And the trouble with West, a 43-year-old forensic dentist from Hattiesburg, Miss., who has made a name for himself in legal circles since the mid-1980s for his seeming ability to match bite marks with the teeth that made them, is that he reminds so many people of Robbins.

Robbins' claims were hotly contested from the moment she first stepped foot in a courtroom. Yet she continued to testify with virtual impunity until failing health forced her off the witness stand.

West's self-proclaimed forensic abilities also have long been questioned by many of his peers. Indeed, he resigned from one professional association in 1994 after it had taken steps to have him expelled. He was suspended for a year from another professional association, to which he was automatically reinstated this past May.

Like Robbins, though, such criticism appears to have had little or no effect on West's legal career, which he says is going strong.

"I'm as active now as I've ever been," he says.

It took years to undo the damage done by Robbins, whose testimony helped put more than a dozen people behind bars, including an Ohio man who spent six years on death row before his conviction was overturned on appeal in 1990.

The consequences of West's testimony are just now starting to be sorted out. And compared to his track record, Robbins was small potatoes.

By his own estimate, West has appeared as an expert about 55 times in nine states over the past dozen or so years, at least a third to a half of which were capital murder cases. He says he lost his first bite mark case, in 1983, but that he has not lost one at trial since (excluding any convictions reversed on appeal).

But West's proclaimed expertise is not limited to bite marks. In fact, he has created a comfy niche, mostly as a prosecution expert, matching not only bite marks with teeth, but also wounds with weapons, shoes with footprints and fingernails with scratches, even spills with stains.

West's testimony has helped put dozens of defendants in prison, some for life, and at least two on death row, where they remain today.

West is perhaps best known for his controversial use of a special blue light to study wound patterns on a body. With a pair of yellow-lensed goggles and a long-wave ultraviolet light, West claims he can see things that are otherwise invisible to the unaided eye.

Criminologists have long used such a blue light to look for trace evidence at the scene of a crime. A few other forensic dentists have experimented with the use of such a light for research purposes. But West is the only one presenting himself as an expert on the subject in court.

The problem with the blue light, according to his scientific counterparts, is that West sees things under it that he cannot document and that nobody else can see. While they say there is legitimate sci-

Even after the Supreme Court tried to rein in expert witnesses willing to testify at the drop of a theory, embattled dentist Michael West and his shining light prove that 'science' can be stranger than fiction.

ABAJ/CARL LEBOEUF

Mark Hansen is a reporter for the *ABA Journal*.

entific basis for suggesting that such a light can enhance features on the surface of skin that otherwise would be difficult to see, there is no evidence that such a light can make a mark that is invisible under natural light suddenly appear. Normal skin fluoresces under a blue light; damaged skin does not, they point out.

But the blue light is just part of the problem his peers have with West. Even when he was not using such a light, they say, West has claimed to see things that he has not been able to document, failed to follow generally accepted scientific techniques, and testified about his findings with an unheard of degree of scientific certainty —"indeed and without a doubt" is his standard operating opinion.

The controversy over West's self-proclaimed expertise illustrates, at a state level, the types of issues that courts confront in deciding who qualifies as an expert witness and what constitutes scientific evidence.

The U.S. Supreme Court set the standard in 1993 for federal trials when it held that such evidence must be validated scientifically. *Daubert v. Merrell Dow Pharmaceuticals*, 113 S. Ct. 2786. It was no longer sufficient for evidence to be based merely on generally accepted scientific principles, which had been the federal standard for 70 years and is still the rule in some states. Daubert was supposed to help keep unproven science out of the courtroom.

Despite all the questions that have been raised about his work, though, West remains in demand as an expert. This past March he testified in separate cases against two Mississippi capital murder defendants who subsequently were convicted and sentenced to death: one for the murder of a 3-year-old girl; the other for the murder of three people. West currently has other cases pending.

West is not alone either, according to his peers, who say there are more than a few others out there like him: self-proclaimed experts whose so-called expertise is dubious at best, but who regard themselves as being equal to any task.

"He is clearly a sore on the body of forensic science," says James Starrs, a professor of law and forensic science at George Washington University and publisher of *Scientific Sleuthing Review*, an industry newsletter. "He is forever going beyond what other scientists are willing or able to say."

Robert Toale calls West 'arrogant'—two of his clients went to prison following West's testimony.

ABAJ/CARL LEBOEUF

Robert Kirschner, former deputy chief medical examiner for Cook County, Ill., which includes Chicago, says what West purports to do is closer to voodoo or alchemy than science.

"History is full of people who claimed they could see things, from ghosts to UFOs," Kirschner says. "But claiming it and proving it are two different things."

Kirschner, who has squared off against West in court on two occasions, says the forensic dentist's work violates every known rule of scientific inquiry and investigation. Nor has West ever been able to document anything he claims to have done, Kirschner adds.

"The results shouldn't be admitted in any court," he says.

But they have been, with troubling regularity, according to Kirschner and other experts, who say some prosecutors are too willing to turn to somebody like West when they lack the evidence they believe they need to tie a suspect to a crime.

Armstrong Walters, a Columbus, Miss., lawyer who has twice crossed paths with West in court, says no district attorney in the Deep South stands a chance of re-election if a murder occurs in his or her jurisdiction and somebody does not wind up in prison for it. "West confirms whatever suspicions the police have," he adds.

West, however, remains defiant, saying he is not doing anything that is not being done by his peers—who, he notes, just happen to be his competitors.

"These personal attacks on me are motivated by professional jealousy."

In defending his own objectivity, West says he does not see himself as either a prosecution or a defense expert, but as an "expert for the truth." All told, he says, he has eliminated many more people as suspects than he has implicated.

West is dedicated, if nothing else. He once had himself bitten on the arm, had the bite mark biopsied and then photographed the wound under different lights over a period of several months, all in the name of science.

He also justifies his choice of terminology, describing the "indeed and without a doubt" opinions he favors as being synonymous with the dictionary definition of certainty and less confusing to a jury than the "reasonable degree of medical/dental certainty" language preferred by his peers.

And West, who still enjoys the support of some prosecutors, shows no signs

Charles Ballay, who prosecuted a Louisiana defendant whose murder conviction was overturned, says West's testimony was key to the case.

ABAJ/CARL LEBOEUF

of backing down. In a rambling, three-hour telephone interview, he at times sounded bowed, but unbroken. Time and science, he insists, will someday prove him right. "I keep losing in committee and in the media," he says. "But I keep winning in court, where it counts."

Asked about the consequences of constantly having to defend himself, he says it has left him "embarrassed, ashamed, financially strapped, humiliated, paranoid and extremely anxious," but otherwise has had "no effect whatsoever."

But he is not taking it lying down. West is suing the American Academy of Forensic Sciences, from which he resigned in 1994, after its ethics committee recommended that he be expelled for allegedly failing to meet professional standards of research, misrepresenting data to support a general acceptance of his techniques, and offering opinions that exceed a reasonable degree of scientific certainty.

His suit, filed last year in U.S. District Court at Hattiesburg, Miss., contends, among other things, that the academy's attempt to expel him violated his due process rights and caused him emotional distress. (As of mid-December, a motion by the academy for summary judgment was pending.)

West also was suspended two years ago from the American Board of Forensic Odontology. The board found that West had misrepresented evidence and testified outside his field of expertise. But he has not sued that organization, of which he is once again a member in good standing.

For a dentist, though, West seems to know a lot about feet. In 1990, for instance, he identified a footprint on a murdered girl's face in Jefferson Parish, La., outside of New Orleans, as having been made by an athletic shoe found in the apartment of a neighbor.

That neighbor, Thomas Abadie, facing a possible death sentence, eventually entered a plea to manslaughter and was sentenced to 31 years in prison.

A year later, in the same parish, West matched a bruise on a murdered boy's stomach to a hiking boot belonging to the boy's mother, Patricia Van Winkle. Although Van Winkle was convicted of manslaughter and received a 21-year sentence, her conviction was overturned on other grounds this past June by the *Louisiana Supreme Court. State v. Van Winkle*, 658 So.2d 198.

Robert Toale, the lawyer who represented both Abadie and Van Winkle, says there is no end to West's arrogance. Toale says he once asked West on cross-examination about his margin of error. He says he will never forget the response.

"Something less than my savior, Jesus Christ," he quoted West as saying.

But West's apparent expertise goes beyond teeth or feet. In 1990, in the Gulf Coast city of Pascagoula, Miss., he matched the fingernails of a murder victim, which he had removed and mounted on sticks, to scratches on the forearms of the defendant, Mark Oppie. Oppie, who also was looking at a possible death sentence, agreed to a manslaughter plea that left him eligible for parole in about six years.

And, in what still may be the most unusual manifestation of his supposed forensic abilities, West showed up in Xenia, Ohio, near Dayton, in 1993, where, presented as a burn pattern specialist by prosecutors, he testified at the trial of a 17-year-old youth charged with involuntary manslaughter in the death of his disabled 6-year-old sister, who had been chemically burned by bleach.

The defendant, who maintained that his sister had spilled bleach on herself, was acquitted, despite testimony by West that the bleach had been poured deliberately on the girl.

"How he got qualified as an expert on bleach spills is between him and the judge," says defense lawyer, John Rion, who sarcastically calls West "the world's expert on everything. I thought [his testimony] was preposterous."

But West says none of it is as preposterous as it may seem.

Teeth and feet are no different from fingernails, pliers, tire irons, bleach or, for that matter, anything else that can be used as a weapon, he says. And just like guns and knives, each has certain class and individual characteristics that can be identified and compared to the wound pattern it is believed to have made to determine whether they match, he adds.

Questions about West's forensic abilities first were raised in connection with an investigation into the 1990 stabbing deaths of three elderly people near Meridian, Miss., in the central part of the state. Nearly two weeks after the killings, West was called in to examine a butcher knife believed to have been used in the crime, as well as the hands of the chief suspect, Larry Maxwell.

West not only identified the knife as the murder weapon, but in his first application of the blue light claimed he could see an impression made by the exposed rivets in the handle of the knife on Maxwell's palm. West says he took photos of this phenomenon, which he then took the liberty of naming after himself, but accidentally overexposed the film, which reduced him to drawing on photocopies of the defendant's palm what he says he saw.

Maxwell, who spent more than two years in jail awaiting trial, was freed in 1992 after a judge ruled that West's blue light testimony was inadmissible.

ABAJ/TOM SALYER

Richard Souviron says West was wrong: Marks on body were not human bites, but ant bites.

"It may well be that Dr. West is a pioneer in the field of alternative light imaging for the purpose of detecting trace wound patterns on the human skin, and it may well be that the future will prove that his techniques are sound evidentiary tools that result in the presentation of inherently reliable expert opinions. But at this time I am not so convinced," Kemper County, Miss., Circuit Judge Larry Roberts wrote.

Maxwell, who also alleges he was

beaten by police, is suing West, along with several local law enforcement officials, in U.S. District Court at Jackson, Miss., on charges of false arrest and use of unreasonable force. Maxwell, whose suit is set for trial in April, is seeking damages of $10 million.

"Essentially, [West's testimony] was the only evidence they had," says Jackson lawyer Karla Pierce, who represents Maxwell in the civil suit.

West, for his part, stands by his testimony. "It was a perfect match," he says of the knife and the pattern he says he observed on Maxwell's hand.

If the Maxwell case didn't damage West's credibility, word of what happened to Johnny Bourn might have destroyed it for good. In 1992, West positively identified a bite mark on an elderly rape and robbery victim in Jackson County, Miss., which includes Pascagoula, as having been made by Bourn.

Unfortunately for West, hair and fingerprint evidence from the crime scene did not match the defendant's. And a DNA analysis of the assailant's skin, obtained from fingernail scrapings of the victim, positively excluded Bourn.

The charges were dropped, but by then Bourn had spent about 1 1/2 years in jail awaiting trial.

"I know [Bourn] bit that woman," West says today, first suggesting that the DNA results were faulty and then speculating on the possibility of multiple assailants. "The question [presented by the DNA] is whether he raped her. He may have had an accomplice."

That kind of controversy has dogged West throughout his career. In 1990, for example, his testimony helped seal the fate of Henry Lee Harrison, a Jackson County man convicted and sentenced to death for the 1989 rape and murder of a 7-year-old girl.

West testified that he had identified more than 41 bite marks covering the victim's body, all of which he said had been inflicted by Harrison, some while the girl was alive, some after she was dead.

"He had very unique teeth," West says of the defendant. "And they all showed up in the wound pattern on the victim's body."

However, two other experts who since have examined the evidence scoff at West's findings. One says the marks on the girl's body cannot be identified. The other says they probably were ant bites.

"To say these are human bite marks is ludicrous," says Richard Souviron, a forensic dentist from Miami who is widely regarded as one of the nation's foremost bite mark experts. Souviron is perhaps best known as the expert who matched serial killer Ted Bundy's teeth to bite marks on one of his victims. He also was chair of the ethics committee of the forensic dentists board, which recommended that West be suspended.

Eddie Castaing (left), with client Anthony Keko, is trying to prevent West from testifying again in Keko's retrial.

ABAJ/CARL LEDOUEUF

"Anytime you take a body and dump it in a swamp, you're going to have insect activity. Anybody could you tell you that," he says.

West replies that "I'm not saying there weren't ants on the girl. But they're not going to bite a pattern into the victim's body that exactly matches the defendant's teeth."

Harrison's conviction and sentence were overturned in 1994 by the Mississippi Supreme Court, but not because of West. The court ordered Harrison retried because it found that the state failed to disclose evidence supporting the rape charge and the judge refused to authorize funds to allow the defense to hire an expert to rebut it. *Harrison v. State*, 635 So.2d 894.

Two years ago, West's testimony also was instrumental in helping convict Anthony Keko for the 1991 murder of his estranged wife, Louise, in Plaquemines Parish, La., near New Orleans.

West, who had Louise Keko's body exhumed more than a year after her death, identified what he said was a bite mark on her shoulder as having been made by her estranged husband. West had the bite mark removed for safekeeping, but later said it had been erased after it was accidentally placed in embalming fluid.

Defense experts, on the other hand, said they could not be sure the mark was even a bite, let alone identify the person who might have made it.

Souviron, one of the defense's experts, says the mark appears to be a postmortem artifact, or an unexplained injury that occurred at some point after the victim's death. "It could have been anything, really."

Yet the jury chose to believe West, whose testimony provided the only direct evidence linking Keko to the crime, according to his lawyer, Eddie Castaing. Af-

Real science

To admit scientific evidence, a judge following *Daubert v. Merrell Dow Pharmaceuticals*, 113 S. Ct. 2786 (1993), must determine that:

- Proposed testimony is based on "good grounds" of what is known in a particular field.
- The theory or technique can and has been tested.
- Testing involved peer review and publication.
- Error rates and control techniques will affect admissibility.
- General acceptance of a theory will have a bearing on admissibility.

While a judge must consider these factors, there is no checklist for determining admissibility in every instance. Publication of a theory does not imply reliability, and some novel theories may not have been published.

ter four hours of deliberation, Keko was found guilty and sentenced to life in prison.

In December 1994, however, the trial judge, voicing doubts about West's forensic abilities in light of the previously undisclosed disciplinary proceedings against him, reversed Keko's conviction and ordered a new trial.

Keko is free on bond while he awaits a new trial, which was tentatively set to begin early this year. But his lawyer is trying to prevent West from testifying again, because without him prosecutors concede they do not have much of a case.

"It's either him or nothing," says Plaquemines Parish assistant district attorney Charles Ballay, the prosecutor.

Ballay says he thinks too much importance has been placed on West's role in the case. West only spent about a day on the witness stand in a trial that lasted 23 days, he says. And the circumstantial evidence against Keko, in and of itself, was very persuasive, he adds.

"It wasn't like the jury was being asked to believe West and only West," he says. "There was a lot of other evidence that pointed to Keko being the murderer."

That evidence alone, though, probably is not strong enough to convict, Ballay concedes. West's testimony is the only evidence, he says, placing Keko at the crime scene, which may explain why he and other prosecutors still vouch for West.

Ballay says there is nothing new or mysterious about West's techniques. The only thing that is new, he says, is that these techniques are now being applied to the field of forensic science for the first time.

James Maxwell, the Jefferson Parish, La., assistant district attorney who prosecuted Abadie and Van Winkle, says flatly that he thinks West is ahead of his time.

"I'm quite confident in the guy," he says. "I have a lot of faith in him. And I think he makes one heck of a witness."

Maxwell says he could not say whether he would use West again, only that he has not had another opportunity to do so.

West, though, is still at it. This past March, while he remained under suspension from the board of forensic dentists, in separate trials only days apart, West helped Mississippi prosecutors obtain first-degree murder convictions against two men who are now on death row.

One of them is Kennedy Brewer of Brooksville, Miss., who was sentenced to die for the 1992 rape and murder of his girlfriend's 3-year-old daughter.

West identified 19 bite marks on the girl's body that he said had been made by Brewer, all of which he claimed to have matched to Brewer's upper teeth.

The defense, once again, called on Souviron, who said the marks appeared to have been made by insects.

But even if they were not insect bites, Souviron says, the marks could not have been made the way West had claimed. It would be impossible, Souviron says, to bite someone that many times without leaving a single bite mark from the lower teeth.

"You could not make bites the way [West] says these bites were made," Souviron notes. "It's crazy."

Crazy or not, the jury believed it, a result which troubles Brewer's defense lawyer, Thomas Kesler, more than any other case he has tried in 16 years of practice.

Kesler, of Columbus, Miss., is no bleeding heart: He has represented two other defendants in capital murder cases; as a prosecutor, he once tried a murder case in which the defendant received the death penalty. And he concedes that a reasonable person might look at the evidence against Brewer and conclude that he was guilty.

But Kesler still has his doubts. Without West's testimony, he says, the case against Brewer was not only circumstantial but paper-thin. And the defendant, who had refused to even consider a plea bargain, has always maintained his innocence, Kesler adds. "It's the kind of case that gives a lawyer heartburn."

John Kenney, chief forensic odontologist for the Cook County, Ill., medical examiner's office, and the current president of the board of forensic odontology, says that even though West is back in the good graces of the organization, he is not home-free. From now on, every time West goes into court, Kenney says, he will have to acknowledge having once been suspended by his peers.

"As forensic scientists, the only thing we have is our reputation," he says. "This blemish on his record is something he'll have to contend with for the rest of his professional life."

But John Holdridge, a New Orleans lawyer whose complaints about West prompted the two professional groups to take disciplinary action against him, says the fact that West is still testifying at all shows that some courts, nearly three years after Daubert, remain unwilling or unable to distinguish science from science fiction.

"I think it shows that judges aren't willing to exercise the discretion that's been given them in any meaningful way," Holdridge says. "They just leave it up to the jury, which is obviously in no position to make these kinds of decisions."

The forensic science community has done its job with respect to West, he says. Now it is up to the courts to do theirs.

New Colors of Mikrosil Casting Rubber Help in Toolmark Identification

Frank H. Cassidy

INTRODUCTION

A presentation by Steve Ojena from the Contra Costa County, CA Laboratory at the CAC's 59th semiannual seminar (1982) in Newport Beach introduced 'Mikrosil' casting rubber to the California criminalistics community—and probably to the crime labs in the United States (1). It is a room-temperature vulcanizing silicone rubber that rapidly cures, is opaque, is a dark brown color and essentially thixotropic so it can be readily utilized on vertical surfaces. It is one of the best--or the best--materials available for replicating toolmarks. This can readily be observed when examining the casting of a gun barrel (like a Smith & Wesson) because even the fine lapping marks are reproduced. Many articles have been published that mention the utilization of 'Mikrosil'. At least two articles list bibliographies where 'Mikrosil' has aided in examination of toolmarks, (2,3). One of its less desirable features, the brown color, can make it difficult to illuminate when examining the detail that have been reproduced, especially fine striations.

Recently, the manufacturer of 'Mikrosil' introduced two new colors of this material, white and black. It was anticipated that mixtures of the brown with white and of the black with the white would produce castings that would be much easier to examine.

CASTINGS USING THE NEW 'MIKROSIL' COLORS

Control toolmarks were made on a piece of lead so that the same toolmark could be used to examine all of the castings of the several colors made by mixing the 'Mikrosils'. The individual castings were identified using the method described in Reference 2. The mixtures examined were black and white of ratios 1:1, 1:2 and 1:3; and brown and white of 1:1 and 1:2.

The several ratios of the materials described above were compared to the original brown utilizing a Leitz comparison microscope at approximately 20-21X. The lighting remained constant for the brown material and was adjusted to give the best illumination for the castings. The pure white and black were also compared to the brown.

RESULTS AND CONCLUSIONS

All of the mixtures resulted in materials that were significantly better than just the brown to utilize for toolmark examination. The author's opinion is that the 1:2 brown: white was aesthetically better; however, the mixtures of the black and white were excellent, also. The lighter ones, the 1:2 and 1:3 ratios, would probably be easier to view than the darker one. One of the drawbacks of the mixtures of black and white is that both of these materials are less viscous than those made with brown. Some problems could occur if these were used on vertical surfaces.

Photomicrographs of the several materials are shown in Figures A — H. It should also be pointed out that the black material is considered unsatisfactory for comparison purposes. Also, the white compared to the brown, Fig. C, would be considered marginal for toolmark replication because it is too light.

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2. Cassidy, F. H., "Replication of Identifying Marks When Using 'Mikrosil' Castings", *AFTE Journal*, Vol. 25, No. 2, (April 1993), pp. 130-1.
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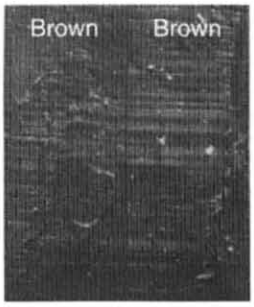

Fig. A

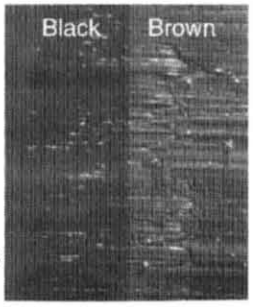

Fig. B

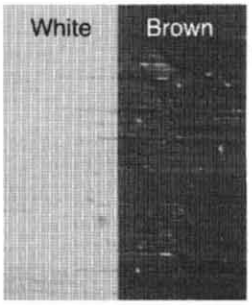

Fig. C

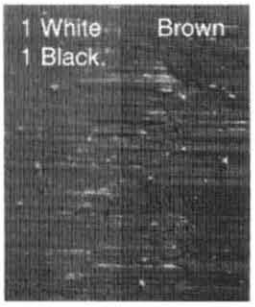

Fig. D

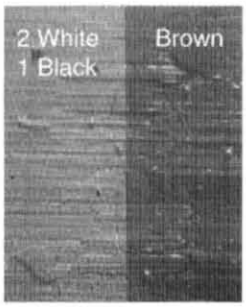

Fig. E

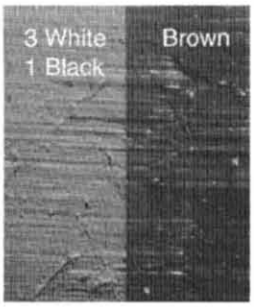

Fig. F

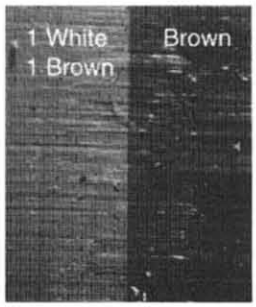

Fig. G

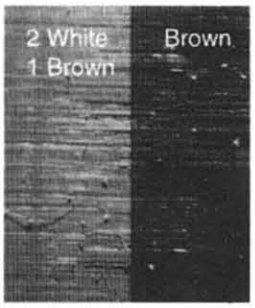

Fig. H

CA Dept. of Justice, Santa Barbara Regional Lab.
Goleta, CA 93117

For all photos, exposure time: 40 sec, Type 52 film. Mag. approx 20X

Forensic Potpourri

The Evidentiary Value of Plastic Bags

By Richard F. Stanko and David W. Attenberger

With the advent and explosive popularity of disposable products within our society, the FBI Laboratory has recently received contributor requests to conduct forensic examinations of disposable blown film products, such as garbage bags. Through such examinations, it is hoped that these disposable bags, which are obtained as evidence primarily in homicide or drug cases, will be associated to a similar film product located in the possession of a suspect.

This article discusses how disposable blown film is produced and explains the variety of manufacturing characteristics, such as pigment bands, die lines or weld lines, fisheyes, and arrowheads, that may be found during examination of plastic bags. Finally, this article seeks to inform criminal investigators concerning the forensic value of blown film products when they are properly collected, preserved, and examined for unique manufacturing characteristics.

Preliminary Research

Pioneering research in the field was conducted by Ulf G. von Bremen and Lorne K. R. Blunt.(1) However, in order to further support their examinations and subsequent testimony, examiners from the FBI Laboratory determined that they needed more firsthand information than the initial research provided. Therefore, the examiners visited manufacturing plants to find out how these products are made.

The Manufacturing Process

Blown film is produced by converting resin pellets (polyethylene) to a melt, which is then forced by an extruder through a ring-shaped die to form a continuous tube of plastic. As the melt exits the extruder(s), it is forced through a screen at high pressure, which may accelerate debris and impurities through the screen to the die. The inflated tube is regulated for desired film gauge, collapsed by frames, and pulled through nib and idler rolls. (2)

After this process, several other procedures impart class and potential unique individual characteristics to the completed bags. These include hot knife cutting and simultaneous sealing of bag edges, re-inflation to ensure the plastic film does not adhere together, Teflon heat seal of the skirt or bag hem, perforation, separation, and packaging.

In an ideal manufacturing environment, all possible film defects would be detected and eliminated. (3) But, in reality, a number of occurrences impart class and unique individual characteristics that enhance the forensic examination.

The Examination

The examination, physical comparison, and matching of polyethylene plastic bags are conducted visually with the aid of transmitted light and low power magnification. In addition, industry research has developed the use of a profilometer to measure caliper average, low point, high point, and profile of the polyethylene film. To record the examination, the specimens are affixed to a light table by double-sided light tack tape and photographed to document pertinent findings.

Preliminary examination and intercomparison of questioned and known bags include the observation of such class characteristics as color, size, embossed code, and construction. (4) Construction characteristics are related to manufacturing and include the location of seams, length of hem (the portion of the bag past the bottom seam), and pigment bands. (5) These bands are caused by inadequate mixing of dyes and pigments with the melt and often run in the general direction of the film production. (6) In addition, die lines or weld lines frequently occur during construction as a result of a damaged die mandrel or from degraded particles of resin or dust lodged under or in the die lips. (7)

As previously mentioned, during the manufacturing process, extruders mix resin pellets and dyes, and the melt is forced through a screen pack at great pressure. Carbon material, resin, pigment or simple grit is formed on either side of the screen pack and is randomly injected into the molten air column. Consequently, the plastic stretches around the unwanted material to form a fisheye. Fisheyes vary in size from one to several centimeters in length and appear as dark spots with one or two lighter colored tails. (8)

The introduction of unwanted contamination may also result in an individual characteristic known as an arrowhead.

Examination of consecutively produced bags has shown that over a roll of only 50 bags, the heat seal changes from the first bag to the last.

Third in a series of articles gleaned from the "information superhighway."

Arrowheads vary in length and size by several centimeters and manifest themselves as dark lines meeting at an apex and pointing away from the die mandrel during manufacturing. (9)

When the individual characteristics or imperfections, such as fisheyes and/or arrowheads, are recognized and compared, the examiner may be able to positively associate two bags as having originally been one piece of plastic. However, to make this conclusion, the random imperfections must be sufficient in quantity and must run across two consecutively produced bags. (10)

Another area of the manufacturing process that the FBI Laboratory has examined is the heat seal of the hem or bottom of the polyethylene bag. The heat seal is created as the sheet film is directed between two metal bars that are wrapped with teflon tape. Then, heat is applied, and the bag is sealed. The teflon tape prevents the melted plastic from adhering to the hot metal; however, it also randomly collects foreign particles and impurities that are then imprinted on consecutive bags. In addition, only the top teflon strip may be rotated to a clean section without stopping production. Examiners base their conclusions on the observation and comparison of the impurities collected on the teflon tape, the nicks and chips on the metal bars, and the resultant changing pattern that is imprinted on the hem.

After proper examination of these characteristics, examiners may be able to state that two bags were sealed by the same teflon tape/metal bar in close proximity. The importance of this type of testimony is magnified when it is explained that the manufacturing line moves at an approximate rate of 200 feet per minute and that research and examination of consecutively produced bags has shown that over a roll of only 50 bags, the heat seal changes from the first bag to the last.

Collection, Preservation and Transmittal

Because drug and homicide violations account for many of the crimes associated with polyethylene bags, special care is required to collect, preserve, and transmit these bags. During crime scene processing and subsequent searches of suspect locations conducted during these investigations, the investigator should collect bags of matching size and color that are distributed throughout a location to afford the examiner an opportunity to determine possible sequencing of the bags.

Additionally, investigators should not cut or rip the edges of the bag to remove the contents. However, if an incision must be made, it should be made in the center of the bag in order to preserve the opening and all edges, seams, and hems for examination of manufacturing characteristics. If the bag is stained, it should be thoroughly air dried away from direct sunlight before submission to the Laboratory. Also, all polyethylene bags should be packed in unused paper bags or wrapping paper and mailed to the Laboratory by registered mail or express mail.

Conclusion

The forensic examination of polyethylene bags for class and unique individual characteristics, when conducted by an examiner with a thorough understanding of the manufacturing process, can provide criminal investigators with an additional scientific means to resolve questions of a plastic bag obtained as evidence in criminal cases. This procedure enhances law enforcement's ability to investigate and develop prosecutable cases.

Endnotes

1 Ulf G. von Bremen and Lorne K. R. Blunt, "Physical Comparison of Plastic Garbage Bags and Sandwich Bags," *Journal of Forensic Sciences*, vol. 28, No. 3, July 1983, pp. 647-648.

2 USI Chemicals Co., "How to Solve Blown Film Problems", p. 3.

3 Ibid., p. 21.

4 Supra note 1.

5 Supra note 1, p. 648.

6 Ibid.

7 Supra note 2, p. 22.

8 Supra note 1, p. 650.

9 Supra note 1, pp. 651-652.

10 Supra note 1, p. 654.

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Aids Used For Detecting Accelerants at Fire Scenes

by Tony Cafe

Recently some members of the NSW Chapter of the IAAI witnessed demonstrations of aids which could be used to assist an investigator at the fire scene select samples for later laboratory analysis. A sniffer dog trained to detect accelerants was demonstrated, as well as a portable gas chromatograph.

The use of various aids and techniques to detect accelerants at fire scenes has attracted controversy during the previous ten years. The much maligned sniffer has suffered continual criticism, yet the author has found it to be invaluable on some occasions. The use of physical indicators such as floor burn through to indicate the presence of accelerants continues to be debated in court. Experts using this sort of evidence without the support of positive laboratory evidence are often heard resorting to hyperbole and analogy to support their case, which usually ends in indignation. The fact is, these techniques are solely used as aids to detect the presence of accelerants, and samples should be submitted to the laboratory for confirmation of the presence and identification of the accelerant.

The aim of this article is to discuss the properties of accelerants and to give an overview and evaluation of the various techniques which can be used to assist the investigator sample debris at the fire scene. As the topic is regularly debated at seminars, views opposite to those in this article will inevitably surface. I'm sure readers would enjoy hearing these views in future issues of *Firepoint*.

The Common Accelerants

The most commonly used accelerants are petrol, kerosene, mineral turps and diesel. These accelerants are generally complex mixtures of hydrocarbon molecules, These hydrocarbons have similar chemical properties, however their boiling points vary and cover a wide range of values. This variation causes the accelerants to alter their composition during the evaporation process. The more volatile hydrocarbons evaporate at a faster rate leaving the heavier hydrocarbons in the debris and after a period of time the accelerant becomes less volatile and less abundant.

During the evaporation process, the headspace above the accelerant becomes concentrated with the more volatile hydrocarbons and so has a different composition than the accelerant left in the debris, It is this headspace which Is tested by the various techniques to detect the presence of an accelerant amongst the debris.

Heavy accelerants such as diesel, or accelerant residues which are heavily evaporated will be difficult to detect as they provide little vapour in the headspace. Accelerants trapped under compacted soil and debris will also be difficult to detect so the debris must be disturbed or a very sensitive technique used. If the detection technique is too sensitive, then hydrocarbons from a material such as rubber backed carpet could be detected and wrongly interpreted as indicating the presence of an accelerant.

Most of the volatile hydrocarbons found in the headspace of the common accelerants are also found in the headspace above most burnt plastics and synthetics but accelerant hydrocarbons are found in different ratios. A chromatographic fingerprint prepared in the laboratory must be used to determine if the hydrocarbons came from an accelerant.

The extraction technique used in the laboratory to prepare the sample for chromatographic analysis also relies on sampling and concentrating the headspace above the debris. During the extraction process it is important to recover as much of the heavier components of the accelerant as possible to avoid analytical discrimination. Extraction techniques such as purge and trap, which rely on a modified version of steam distillation give the least amount of discrimination.

Methylated spirits and acetone are also used as accelerants however they differ from the common accelerants as they are water soluble and composed of essentially a single compound. Being water soluble, they are frequently washed from the fire scene by the fire fighting operations. They are also common pyrolysis products so their presence in debris must be quantitatively assessed,

The techniques used for detecting accelerants are outlined below and discussed. The techniques are listed according to the author's opinion of their degree of usage and relative merit.

1. Physical Indicators

Physical indicators are listed first as they prove the accelerant was present at the time of the fire and was not placed there after the fire was extinguished. Investigators armed with even the most sophisticated hydrocarbon detector should not overlook the physical evidence.

Physical indicators used to detect the presence of accelerants are localised burn patterns to floors and surfaces and overhead damage inconsistent with the naturally available fuel. Reports from fire fighters or eyewitnesses of a rapid fire or of suspicious odours can also indicate the presence of an accelerant.

These physical indicators if initially present, can often be destroyed during the course of the fire. If the roof or ceiling has collapsed, then evidence such as localised burn patterns on the floor can be concealed. The investigator should excavate the debris around doorways or in the centre of open spaces as these are areas where accelerants are normally used. If a wooden floor is involved, the investigator can hit the floor with a shovel and excavate the areas where the floor appears weakened.

Physical evidence which indicates a hot and intense fire such as a colour change or spalling in concrete, melted aluminium and deformation of steel are unreliable indicators of the presence of an accelerant, as the temperature reached during the course of a fire is governed by the amount of both fuel and oxygen available. Many combustible materials tend to burn with the same intensity as accelerants, given an appropriate supply of oxygen.

2. Use of one's sense of smell

The human sense of smell can quite correctly identify the presence of accelerants, even in trace amounts. This ability varies amongst investigators as the sense of smell is like most other senses and can become highly developed through experience, or it can become impaired both temporarily or permanently.

When one smells fire debris, they are actually sampling the headspace above the debris and noting the chemical fingerprint of the headspace. Then using one's discriminatory powers by comparing the fingerprint with those stored in one's memory, a decision can be made as to the possible presence of an accelerant.

Wine tasters use a similar technique, and their highly developed sense of smell can detect extremely minute variations in the chemical fingerprint of a wine amongst a background of water and ethanol. The same test performed by scientific analysis and scientific interpretation requires a considerable amount of time and expertise.

The human sense of smell suffers from fatigue which causes a loss of sensitivity and also the ability to discriminate accelerant vapours. The vapours found at fire scenes may be harmful so debris should only be smelt when necessary. Continually smelling these toxic vapours will cause the smelling senses to become less effective. On cold still mornings when the sense of smell is quite sharp, accelerant odours can sometimes be smelt while the investigator is making his initial inspection of the fire scene. As the debris becomes disturbed during the course of the investigation the sense of smell becomes less effective due to the contamination of the atmosphere.

If dangerous chemicals are known to be at the fire scene it is imperative to avoid smelling debris. Residues from copper chrome arsenic treated logs if inhaled could cause serious health problems. All fire scenes have noxious gases and soot particles present which can lodge in the respiratory system and cause problems. Asbestos fibres and mineral fibres from insulation are also a problem. Because of these dangers, fire investigators should not examine a fire scene soon after the fire is extinguished. At this time the concentration of toxic vapours will be at a maximum and these vapours if trapped in pockets under debris could be released during the excavation. The investigation should ideally be made a day after the fire as by that time the scene will have cooled and the toxic vapours held in pockets will have dispersed.

Cartridge respirators should be worn whenever possible during fire scene excavations, These have been considered by some to be expensive and uncomfortable but designs have improved in recent years and a good respirator can now be purchased for approximately $25 from most hardware stores.

3. Sniffers

Sniffers (or portable gas detectors) are best employed when toxic dust or vapours are present or if the investigator's sense of smell is impaired, They do not have the same discriminatory powers as the sense of smell as they respond to a wide variety of compounds in the headspace including non accelerant vapours.

A range of portable gas detectors are available on the market as industry has a need for these types of instruments to detect gas leaks or flammable or toxic atmospheres. Various types of detection techniques are employed in sniffers and the price reflects the type of detector used in the instrument.

The cheapest type of sniffer uses a detector which measures changes in the oxygen concentration. These instruments lack specificity as they respond to all types of hydrocarbons and also gases such as ammonia, alcohols, carbon monoxide, carbon dioxide and even water vapour, The advantages of using these instruments are they are small, cheap and robust. The best instruments are those which have a control to vary the sensitivity of the instrument. They can be used very effectively if the operator is familiar with the instrument and aware of their shortcomings.

A more expensive sniffer employs a detector such as a flame ionisation (FID) or photo ionisation (PID) which will respond to hydrocarbons but not inorganic vapours, The instrument is extremely sensitive but cannot discriminate between hydrocarbons originating from accelerants or those from burnt plastics. Because of their high sensitivity the investigator could easily misinterpret the results and could for example believe he is following an accelerant trail when in fact the investigator is simply following a trail where a synthetic carpet has become more severely burnt.

Sniffers do not respond to the quantity of accelerant present in the debris but to the quantity of accelerant present in the headspace above the debris. Therefore the debris needs to be disturbed before the sniffer probe is inserted amongst the debris. A large area of the fire scene can be scanned in a relatively short time by using techniques such as continuously lifting the debris with a shovel and inserting the sniffer probe under the shovel blade and noting the detector's response. Sniffers are invaluable when tracing the source of a gas leak.

4. Sniffer dogs

Sniffer dogs are used for the detection of drugs, explosives, corpse location, termites, contraband food and for tracking purposes. Dogs have a sense of smell which is much more sensitive than the human sense of smell. They also have much greater discriminatory powers and can therefore respond much more quickly to target scents. Their physical abilities and their desire to please their handlers enable dogs to thoroughly scan a large area at a fire scene in a relatively short time.

Dogs sample the headspace above the fire debris with their smelling senses and use their discriminatory powers to determine if the detected hydrocarbons originated from an accelerant . Their discriminatory powers are learnt through training.

Training generally involves a series of exercises where the dog routinely retrieves a hidden toy or object which carries the target scent. Upon successfully retrieving the object, the dog is rewarded with affection or a favourite food. When the dog locates the target, the handler notes a change in the dog's behaviour and then calls the dog so the area is not disturbed.

Dogs need to be able to discriminate between accelerant vapours and vapours such as those originating from burnt plastics and paints. They must reliably perform this task amongst a background composed of thousands of different chemicals originating from burnt furniture and building materials. Dogs should therefore be trained and rated at fire scenes.

The effectiveness of sniffer dogs is entirely dependent on the level of training the dog has been given. Drug detection dogs for instance are trained to detect drugs when a masking agent such as curry powder or pepper has been used. Criminals in an attempt to avoid pursuit by tracking dogs have been known to place urine obtained from a bitch on heat across their escape route.

Sniffer dogs have only recently been used at fire scenes but I'm sure that given the correct training they will be the greatest advancement made in recent years in accelerant detection. The use of sniffer dogs at fire scenes where the damage is widespread, such as a furniture factory fire, would be extremely cost effective as compared to using a forensic expert to dig out and inspect the entire scene.

5. Portable Gas Chromatographs

At a recent demonstration a portable gas chromatograph was used for accelerant analysis. The instrument was equipped with an FID detector and a small packed separation column. The instrument was versatile as it could be used as a sniffer where the air sample is introduced directly into the detector or as a chromatograph where the sample is introduced into the column for separation before reaching the detector and a chromatogram produced of the analysis.

The instrument was quite sensitive however the analytical column available at the time of testing was lacking in resolving power. Further developments in this area are being undertaken by the manufacturer. These developments could lead to the instrument being quite valuable to investigators as the instrument is capable of not only detecting hydrocarbons at trace levels but can also discriminate whether these hydrocarbons originated from an accelerant or from a burnt plastic. The result obtained from the machine should be verified by laboratory analysis as the machine samples the headspace above the debris which can lead to discrimination.

6. Chemical Tests

Two types of hydrocarbon chemi-

cal tests have been used for accelerant detection. Draegar tubes are routinely used for detecting hydrocarbons in the atmosphere and hydrocarbon field test kits are used for soil and water analysis and both have been used at fire scenes.

Both tests rely on a colour change as a result of the hydrocarbon reacting with a developing agent. They are generally used for the quantitative analysis of hydrocarbons and cannot discriminate between hydrocarbons originating from accelerants or those originating from burnt plastics. Both techniques are expensive to use and can only be used for a single analysis.

Conclusions

Of the techniques discussed above, the sniffer and the chemical tests cannot discriminate between hydrocarbons emanating from accelerants or those emanating from materials such as burnt plastics. The human sense of smell, the sniffer dog and the portable gas chromatograph have this discriminating ability.

Regardless of the technique used to detect the presence of an accelerant the findings must be verified by the available physical evidence and by laboratory tests.

First printed in Firepoint *Magazine December 1993, Australian Fire Investigators Association. Reprinted here by author's permission.*

* * *

Sampling Debris at the Fire Scene

by Tony Cafe

One of the many objectives of a fire cause and origin investigation is to determine whether flammable liquids were deliberately used to accelerate the spread of the fire. These liquids are termed accelerants and if their use is suspected at the fire scene then debris samples from various areas should be submitted to the laboratory to determine the presence, distribution and identity of the accelerant. This information will support the investigator's own understanding of the ignition and propagation of the fire.

The efforts of the forensic laboratory are entirely dependent on the quality of the samples provided and therefore a major objective in forensic fire cause determination is to successfully locate and sample fire debris for subsequent laboratory analysis for residual accelerants. To achieve this aim the investigator needs to apply the proper sampling techniques and have a basic understanding of the chemical and physical nature of some of the common accelerants and their behaviour during and after a fire. The aim of this paper is to briefly explain some of these considerations.

The Nature of Accelerants

The most commonly used accelerants are petrol, kerosene, diesel and mineral turpentine. They are all derived from crude oil which is a very complex mixture of hydrocarbons whose components with similar physical and chemical properties are collected to give the various fuels and solvents. Because the common accelerants are themselves complex mixtures it is best to examine the graphs produced from the analysis by capillary Gs Liquid Chromatography (GLC) to understand their properties and behaviour.

Gas Liquid Chromatography is the most widely used laboratory instrument for analysing accelerants because of its ability to detect and identify trace amounts. A headspace or liquid sample of the volatiles extracted from the fire debris is taken and introduced into the instrument where it is volatilised and swept by a gas stream through a long tubular column towards a detector. As the sample moves through the column the various components will separate so that the compound with the lowest boiling point will emerge from the column first to be detected followed by the other components I order of their boiling points. By measuring the time from injection at which the individual components emerge from the column it is possible to positively identify each component. The entire analysis is recorded on a chart called a chromatogram where each component of the sample is represented by a peak and the overall pattern is essentially a fingerprint for each accelerant.

Fig. 1 shows the chromatograms produced from the analysis of fresh, kerosene, fresh diesel and evaporated kerosene exposed to the atmosphere for seven days. The major peaks are labelled according to the chain length of the molecule producing the peak.

By comparing the chromatogram produced from fresh kerosene and diesel it can be seen they have similar component and are complex mixtures being produced from the fractional distillation of crude oil. Diesel is however composed of components that have a higher boiling point and so is termed a heavier fraction. As kerosene weathers the more volatile components tend to evaporate and its chromatogram begins to resemble that of diesel. For this reason it is difficult for an analyst to conclusively identify kerosene in fire debris samples if sampling is made some time after the fire and weathering of the accelerant has occurred.

Petrol is a more volatile mixture than kerosene and therefore more readily forms explosive mixtures in air which upon ignition can cause considerable damage to the surrounding environment. The chromatograms produced from the analysis of fresh petrol and evaporated petrol are shown in **Fig. 2** and it can be seen there are fewer peaks present in the chromatogram of evaporated petrol. The analyst when presented with this chromatogram being essentially a partial fingerprint of the accelerant, has less information with which a conclusion can be made regarding the identification of the accelerant.

The common accelerants are all insoluble in water and as such are not readily washed away during the extinguishing of the fire. They tended to become sealed into porous surfaces which prevents their evaporation and have been found to remain at the fire scene for periods of up to three months. Water soluble accelerants such as methylated spirits, acetone and some of the industrial solvents tend to be washed away from the fire scene. Traces do remain but will readily evaporate because they are not sealed into the surfaces by water. If a water soluble accelerant is suspected in a debris sample the analyst should be notified in case the analytical procedures require some modifications to successfully analyse water soluble compounds.

Because of the reasons illustrated above it is important to sample debris as soon as possible after the fire so the laboratory analysis will yield as much data as possible on which to base a conclusion regarding the presence and identity of an accelerant.

Where to sample

At the fire scene various indicators are used to predict the presence and location of an accelerant. These may be eyewitness reports of a raid and intense fire in its initial stages or the presence of heavy localised burning to the flooring material

and overhead damage which is inconsistent with the combustion of the naturally available fuel below. Accelerants are normally found at the area of origin of the fire, in doorways where an arsonist would attempt to leave a building and in large spaces such as in the centre of a room where the arsonist can move about freely when distributing the accelerant. It is often helpful when attempting to locate areas where accelerants may be present to visualise the scene before the fire and predict the movements and actions an arsonist would make whilst spreading an accelerant.

Materials for sampling

After locating the area where it is felt an accelerant may be present a sample of debris which will have the highest probability of retaining traces of accelerant is required. As a general rule if the area to be sampled is wet traces of petroleum derive accelerant would be expected to remain. Therefore the best materials to sample are wet porous materials such as soil, paper, cardboard, bagging, carpet, cloth and to a lesser extent concrete. Readily combustible materials such as rubber and timber are generally not good materials to sample because their combustion supports the depletion of the accelerant.

When sampling a material that is difficult to remove such as concrete, an absorbent may be sprinkled onto the surface to absorb water and in turn traces of an accelerant if present and the absorbent recovered and analysed. Absorbents that can be used are diatomaceous earth which is commonly used for swimming pool filtration, fullers earth, inorganic carbonates and some industrial absorbants. Flour has been used but is unsatisfactory because its subsequent fermentation in the container will produce ethanol which is the major component of methylated spirits. Household absorbents such as sanitary napkins and disposable nappies can also be used to sample from concrete.

To assist in the selection of a sample the investigator normally uses their own sense of smell to detect any odours of accelerants. The debris can be smelt directly or warmed in one's hands to release vapours. The use of portable gas detectors (Sniffers) at the fire scene to detect traces of accelerants has also been used.

Use of a sniffer

They may employ a flame ionisation detector or a catalytic oxidation probe. The latter is the most commonly used because of its low cost and robust design. The major problem when using nearly all types of sniffers regardless of their principle of operation and their price is they cannot discern between accelerant vapours and pyrolysis products and because of this their use at a fire scene remains a continual source of controversy amongst investigators.

The main advantage when using a sniffer rather than relying on one's sense of smell are:

- The sense of smell varies widely amongst individuals both qualitatively and quantitatively and tends to deteriorate during the day particularly if noxious gases are present.
- From a safety point of view it is not good practice to regularly smell fire debris as toxic pyrolysis products are present at all fire scenes.
- The sniffer probe can be inserted into difficult areas to reach such as under freshly lifted carpet or into drainage pipes.
- They are invaluable when tracing the source of a readily dispersible vapour such as a gas leak.

Table 1 is a summary of a sniffer response to 112 fire debris samples submitted to the laboratory over a period of six months. The samples were classified according to their basic composition and the sniffer response was classified as being either positive or negative. When testing with the sniffer the debris was not disturbed for fear of losing accelerant vapour. The figure shown in parenthesis is the number of samples that gave a positive analytical result for accalerants when tested using the more conclusive technique Gas Liquid Chromatography.

Table 1

Material	Pos sniffer	Neg sniffer
Ash & charcoal	18(5)	10(0)
Carpet	22(18)	9(1)
Cardboard & paper	10(10)	7(2)
Concrete	2(0)	4(0)
Soil	1(1)	12(8)
Felt & cloth	7(7)	2(0)
Plastic	1(1)	5(0)
Timber	2(1)	0(0)
TOTAL	63(43)	49(11)

Sniffer response for 112 samples (number in parenthesis indicate positive GLC result).

It can be seen from Table 1 that the material which gave the highest ratio of true positive readings were carpet, cardboard and paper, felt and cloth. The investigator when using a sniffer should sample these materials if an option exist. The soil sample gave the highest ratio of false negative readings (8 out of 12) indicating that when testing on site the soil must be freshly disturbed so that accelerant vapours are released to be detected. The high overall number of false positive readings obtained (20 out of 63) using the sniffer indicates the lack of specificity of the instrument.

For testing materials such as rubber backed carpet or polystyrene which can both produce liberal amounts of pyrolysis products as indicated by their odours, the sniffer will give random positive readings that could confuse the operator. Also a poorly tuned instrument, a low battery or an instrument malfunction may give the investigator a false impression that accelerants are absent from the fire scene.

Sniffers can be a valuable aid at the fire scene however the operator must be aware of the principle of operation of the instrument so that it may be tuned correctly before use and its results are interpreted correctly. It must be stressed they are only to be used as an aid for the collection of samples for laboratory submission and their results are not conclusive regarding the presence or absence of an accelerant. The best option for selecting debris samples is to use a combination of relying on one's sense of smell and having a sniffer on hand to use as the circumstance requires.

Sampling containers to use

Various containers have been used for sampling fire debris however unlined metal paint cans are regarded as the most suitable because of their excellent sealing capabilities, their robust design and are harmonious with most analytical techniques. Plastic bags are easily pierced and are prone to diffusion of vapours both into and out from the bag and glass jars are fragile.

Metal paint cans come in a variety of sizes and types being unlined or lined with an epoxy coating designed for the storage of water based paints. **Fig. 3** is a chromatogram produced from analysing the volatiles extracted from a lined can together with a chromatogram of petrol. It can be seen an industrial solvent, similar to petrol has been used in the manufacture of the lining and for this reason lined cans should never be used for sampling fire debris.

Control samples

Control samples or blanks generally form part of the scientific process to en-

sure that background materials do not contribute to the result.

This paper was presented by the author at the 2nd Australian Arson Fraud Seminar, 18-21 October 1990 at the Gazebo Hotel, Sydney Australia.

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Figure 1. Fresh kerosene, diesel and evaporated kerosene.

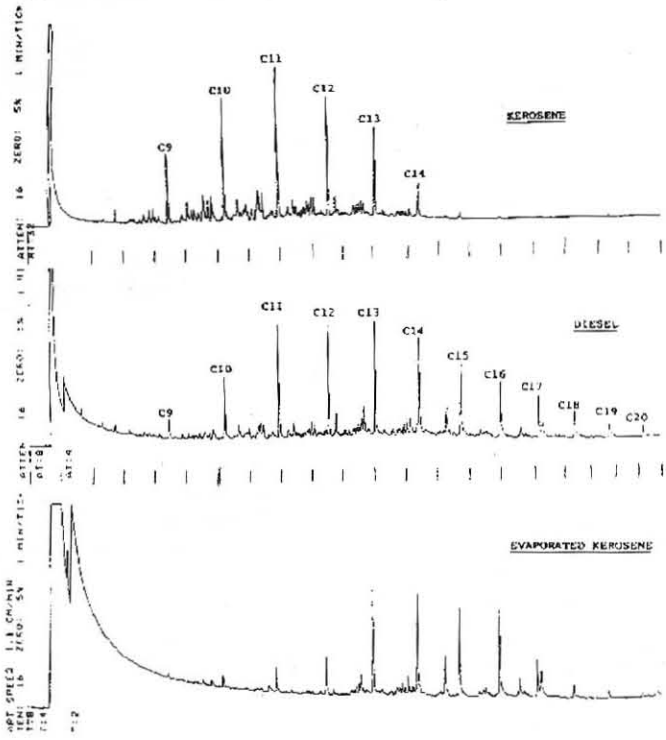


Figure 2. Evaporated petrol, fresh petrol.

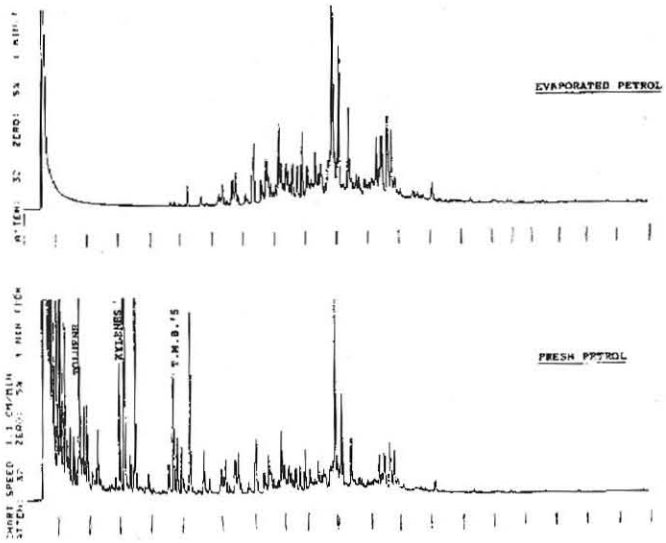


Figure 3. Petrol, lined can.

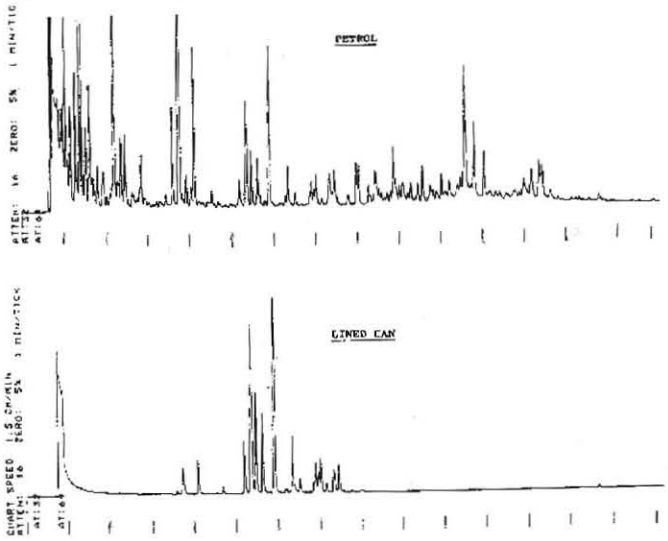


Figure 4. Kerosene standard, burnt polyethylene.

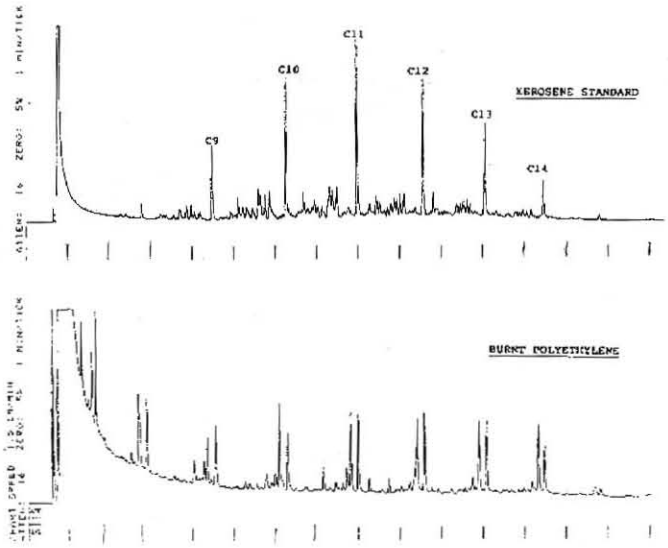
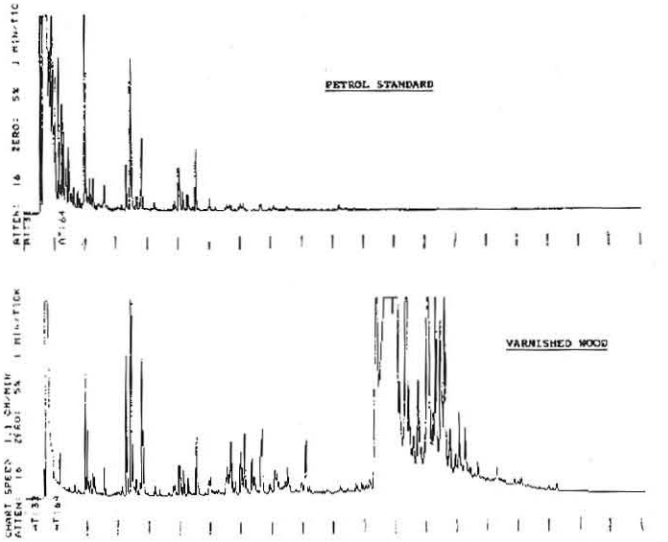


Figure 5. Petrol standard, varnished wood.



CTT triplex validation and use in casework, **Marc Taylor** presented work on validation of amelogenin co-amplified with PM + DQA1, **Dan Gregonis** presented validation work and use of D1S80 in casework.

August 13• *Forensic Biology* met at Orange County Lab—**Ed Buse** presented work on validation and use of chemiluminescence for RFLP detection, **Rob Keister** discussed TWGDAM July meeting.

September 5• LAPD crime lab hosted a dinner meeting featuring Det. Charles Zeglin of LAPD's Career Criminal Apprehension Section spoke about gang apprehension and prosecution through systems designed to track gang members and use of the Street Terrorism Enforcement Prevention Act. Blood Alcohol, Trace, and Forensic Biology Study groups also met. In addition, the first in a series of meetings designed to review material required to pass the ABC's General Knowledge Examination was held prior to the study group meetings. **Faye Springer** of the Sacramento DA's crime lab presented material relating to crime scene investigation and processing.

—Dave Stockwell

Report on DNA Advisory Board Meeting

At the direction of the membership and the Board, I attended the DNA Advisory Board (DAB) meeting held June 20-21 in New York City. The DAB was created by congressional action for the purpose of recommending to the Director of the FBI quality assurance standards that would be binding on any laboratory receiving funding under the DNA Identification Act or any laboratory seeking to contribute data or search CODIS. At this meeting, the Board considered and approved a document entitled "Quality Assurance Standards for Forensic DNA Testing Laboratories" after some modification, on a 10 to 1 vote. DAB member Margaret Kuo cast the only vote in opposition to these standards.

The DAB Standards resemble TWGDAM Guidelines to a great degree. However, they differ from TWGDAM in several substantive areas, in particular the degree, coursework requirements and scope of duties of the DNA technical leader. Then differences may have a profound impact on the future of the forensic DNA analysis program in your laboratory. In addition, they may have a profound effect on whether criminalists such as yourself will be able to participate fully in forensic DNA programs as technical leaders and supervisors.

The CAC Board agreed that the profession needs to become and remain aware of the actions of the DAB. Accordingly, I have sent a package of information to every crime laboratory in California and to selected laboratories in neighboring western states. This packet includes a copy of the DAB standards, related action undertaken by the DAB, a summary of the main departures from TWGDAM guidelines and issues as I see them, as well as a list of addresses of DAB members.

In his remarks during the meetings DAB Chairman Joshua Lederberg stated that he was looking to the forensic science community to point the way on many of these issues. It is critical that the DAB hear from that community. The recommendations made by this Board will affect who does this work and how it is done for years to come. Please take this time now to anticipate their impact on you and your laboratory and let the Board hear your concerns. Laboratory directors may wish to consider directing correspondence to ASCLD President Carrie Whitcomb, as well.

Please feel free to contact me at (510) 238-3386 if you have any questions concerning this matter, can't find your laboratory's package or need additional copies.

—Mary Gibbons

* * *

Meetings, cont'd

SAFS Spring Meeting

The Southern Association of Forensic Scientists have scheduled their spring 1997 meeting for April 16-19 at the Huntsville Hilton and Towers, Huntsville, Alabama. Contact Martha Odom, AL Dept. of Forensic Sciences, 716 Arcadia Circle, Huntsville, AL 35801

SOFT Annual Conference

The Society of Forensic Toxicologists has selected Snowbird, Utah as the location for their 1997 Annual Meeting. The conference will be held from October 6 through 10, and is hosted by the Center for Human Toxicology, U. of Utah. Call Linda Williams, (801) 581-5809.

Criminalists Wanted

The California DOJ, Bureau of Forensic Services, is seeking applicants to participate in an examination for Criminalist. Responsibilities include conducting examinations of crime scenes for physical evidence and making all types of chemical analyses. Qualifications include graduation from college with a major in a physical or biological science with eight semester hours of general chemistry and three semester hours of quantitative analysis. Contact Janet Crocker, 4949 Broadway, Room F-104, Sacramento, CA 95820, (916) 227-3635 or FAX (916-227-3635.

Child Abuse Conference

Nashville is the site for a two-day conference entitled, "Investigation of Crime: Child Abuse, Winning in Court" to be held Oct. 21 and 22, 1996, at the Ramada Inn across from Opryland. The fee for this conference is $280 with a $25 cancellation fee. The conference is being presented by the Center for Medicolegal Research and Consultation. Continuing legal education hours have been applied for with various state bars and with law enforcement accreditation agencies. Contact Karen Griest, MD, 160 Washington, SE #234, Albuquerque, NM 87108, (505) 281-8109.

SWAFS offers Mexican PDR

The Southwestern Association of Forensic Scientists is having its spring 1997 conference in El Paso, Texas on April, 20-24. As a fund-raiser, they are offering for sale the *"Diccionario de Especialidades Farmaceuticas"*, AKA the Mexican PDR. These 1996 editions are hot off the press and offered at $100 each. For more information, contact Fernando Pena, Jr., SWAFS-El Paso DPS Lab, 11612 Scott Simpson, El Paso, TX 79936.

President Barnett, cont'd

opportunities: Regional organizations such as the CAC, national organizations such as AAFS, specialty organizations such as AFTE, certification organizations such as ABC, standardization organizations such as ASTM, and accreditation organizations such as ASCLD-LAB. All of these organizations can only be as effective as the efforts of their members allow.

The successful operation of these organizations requires participation from the profession. If you are a laboratory manager, you should encourage the criminalists in your laboratory to participate in professional activities—support their professional activities, recognize their professional accomplishments, encourage their professional advancement, and reward their professional recognition. If you are a criminalist, you should expect this recognition, support, encouragement, and reward—but not require it as a condition of participation. After you have attended your next seminar or training class, make a commitment to host the next meeting, teach a class, take a test, write a test, serve on a committee, write a standard, or serve on a Board of Directors.

The job of criminalistics will be done. It may be done by people hired to work in crime labs following procedures and practices established by bureaucrats and committees composed of people who have never been in a crime lab, been to a crime scene, or handled a piece of physical evidence. However, I believe it should be done by professional criminalists, whose scientific training and professional commitment qualifies them to serve the justice system effectively.

e-mail: pbarnett@crl.com

Letters, cont'd

The American Society of Crime Laboratory Directors (ASCLD) maintains a Proficiency Advisory Committee which provides technical supervision of CTS's proficiency testing program. Further, In their "Guidelines for Forensic Laboratory Management Practices", ASCLD states, *"(l)aboratory managers must monitor the skills of employees on a continual basis through the use of proficiency testing...."* Elsewhere in that same document ASCLD states, *"(l)aboratory managers should support peer certification programs which promote professionalism and provide objective standards that help judge the quality of an employee's work."*

I do very much respect the time, effort and knowledge that these ASCLD members bring to the Proficiency Advisory Committee. Their service is a significant commitment, especially on a committee as active as this one. Yet, according to the just published ABC Membership Directory, *not one* of these eleven committee members has achieved Fellow or even Diplomate status. In other words, none of the people who design the proficiency tests, required for specialty certification, are certified themselves.

By its own guidelines ASCLD clearly supports proficiency testing and the certification of individuals. I want to take this opportunity to suggest that I in order to be consistent, ASCLD ought to support the certification of their Proficiency Advisory Committee members as well.

Jeffrey A. Thompson

Recreations

Answers to

Ed Jones' Face Game — "California Originals"

Top row (l-r) **Roger S. Greene** (1908-1963) One of the founders of the CAC, Roger was an outstanding scientist and criminalist employed by the Bureau of Criminal Identification and Investigation in Sacramento, CA from its inception in 1931. He was one of the first fulltime scientifically trained criminalists employed by a law enforcement agency.

Edward Rhodes (1950-1995) Ed completed his undergraduate and graduate training under John Thornton at UC Berkeley, where his doctoral thesis was in the area of handwriting kinetics. Teacher, past president of CAC, innovator and mentor to many, Ed was instrumental in bringing national certification of criminalists into reality.

Alfred Reed McLaughlin (1919-1987?) Reed joined the CAC in 1960, and is best known today as the benefactor of the CAC's A. Reed and Virginia McLaughlin Endowment Fund, a source of financial support for training and research in the field of criminalistics. Reed was orginally hired in 1941 as an LAPD officer, retiring from the force in 1968.

Bottom row (l-r) **Ray Pinker** (1904-1979) Ray was one of the orginal founders of the CAC in 1955, and was LAPD's first polygraph examiner. He was hired in 1929 as a civilian police chemist and later was promoted to the civilian rank of Chief Forensic Chemist (the first) with the duties of Technical Director of Scientific Investigation.

Paul Kirk (1902-1970) Professor of criminalistics at U.C. Berkeley, he is still considered a giant in the field of forensic science. A great innovator in what he termed "ultramicroanalysis", Paul developed methods used all over the world in medicine, research and industry. He authored over 250 articles and five textbooks in such diverse disciplines as refractive index, toxicology and fire investigation.

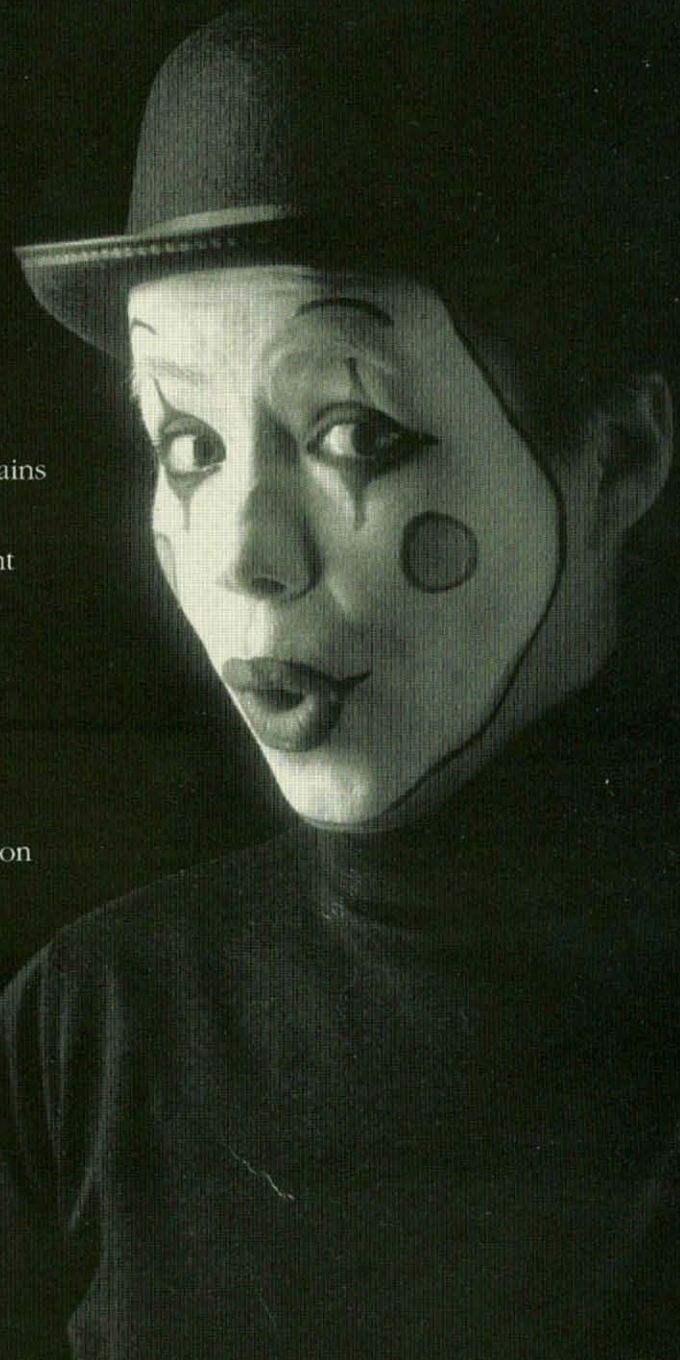
Edward Heinrich (1881-1953) Known as the "Wizard of Berkeley", Edward lectured for years on the faculty of U. C. Berkeley in criminal investigation and police science. He travelled far and wide testifying in over a thousand cases for federal, state and local jurisdictions. He pioneered the idea of a methodical, scientific approach to the analysis of evidence.

Photo and research credit: Sue Brockbank LAPD Archives; C.V. Morton, *CACNews,* Fall 1979; John Thornton, *J. Crim. Pol. Sci. Law.*, 1971; T. Hunter, *J. Crim Pol. Sci. Law.*, 1970; E. Block, "The Wizard of Berkeley", 1958.

Not planning to go to the Fall Seminar?

If you don't, you'll miss:

- Criminalistics and the World Wide Web: An Introduction to the Internet
- Paints and Coatings as Trace Evidence
- Microscopic Fiber Indentification
- The Bill Suff Serial Homicides
- Computer Statistical Analysis of Mixed Stains in Cases of Rape
- A Practical Means of Extracting Accelerant from Fire Debris
- Trends in the Paint Industry
- Technical Working Group on Materials (TWGMAT)—an Overview
- Identifying a Bullet to a Barrel Cast
- Analysis of an ANFO Pipe Bomb Explosion
- Deposition of Smoke and Gunpowder on Different Targets Using a Variety of 9mm Luger Ammunition and Firearms
- DNA Users Group Meeting
- Workshops on Pollen Identification, Communication, Management skills and more!



Doesn't that leave you speechless?!

Change your mind? Reserve a room now at (800) 444-8311, CAC Fall 1996 Seminar, Palm Springs, Oct. 9-12. Elissa Mayo, Chairperson