NEWSLETTER

California Association of Criminalists

JUNE 1984

CONTENTS:

This mailing also includes the following items:

1. Board Meeting Minutes, Feb. 21, 1984 (Approved).

UPCOMING MEETINGS

Sixth International Biodeterioration Symposium
August 5-10, 1984. Biodeterioration of Forensic Science Evidence and Materials. George Washington University, Washington, D.C. Contact: James L. Mudd; Forensic Science Research and Training Center; FBI Academy; Quantico, Virginia 22135. (703) 640-6131.

Canadian Society of Forensic Science
August 20-26, 1984. Winnepeg, Manitoba. Viscount Gort Flag Inn. Contact: Executive Secretary, (613) 235-7112.

International Association of Forensic Sciences
September 18-25, 1984. Oxford, England. Contact: The Secretariat, 10th IAFS Meeting, Clarke House, 18 Mount Parade, Harrogate, HG1 1BX, England.

Northwest Association of Forensic Scientists
October 3, 4, & 5, 1984. Medford, Oregon. Holiday Inn. Contact: Brad Telyea; 650 Royal Ave., Suite 11; Medford, OR 97501. (503) 776-6118.

Midwestern Association of Forensic Scientists
October 3, 4, & 5, 1984. Des Moines, Iowa. Hotel Fort Des Moines. Contact: Kim Krull (515) 281-3666.

Southern Association of Forensic Scientists
October 4, 5 & 6, 1984. Gulf Shores, Alabama. Gulf State Park Resort (on the beach) 1984. Contact: Grace Johanson; LSP Crime Lab; P.O. Box 66614; Baton Rouge, LA 70810.

CALIFORNIA ASSOCIATION OF CRIMINALISTS - FALL SEMINAR 1984
October 24-27, 1984. San Diego, CA. Hosted by the San Diego Police Department Crime Laboratory. Town and Country Hotel in Mission Valley. Contact: Jim Stam; San Diego Police Department; 801 Market St.; San Diego, CA 92101. (619) 236-6505.

Northeastern Association of Forensic Scientists
October 25, 26 & 27, 1984. Uniondale, NY. Marriot Uniondale Hotel. Contact: Lowell Mark; NJSP Lab; Route 46; Little Falls, NJ 07090 (201) 256-7790.

Association of Firearm & Tool Mark Examiners
May 13-17, 1985. Michigan State Police Academy. Contact: James Berglund (517) 348-5449.

CALIFORNIA ASSOCIATION OF CRIMINALISTS - SPRING SEMINAR 1985
May 17, 18, 19 (Friday, Saturday, Sunday). Oakland, CA. Hyatt Regency Hotel. Hosted Jointly by the Oakland Police Department Crime Laboratory and the University of California, Berkeley. Contact: Jan Bashinski; Oakland Police Department Crime Lab; 455 7th Street, Rm 608; Oakland, CA 94607. (415) 273-3386.

California Association of Criminalists

OFFICE OF
PRESIDENT

June 15, 1984

Dear CAC Member:

I would like each of you to ask yourself: "How am I contributing to the California Association of Criminalistics?" The CAC represents a forum wherein the efforts of hundreds of Forensic Scientists can be brought to bear on both technical and philosophical issues. There is a tremendous power associated with our role as expert witnesses. There exists a concomitant responsibility to use this power appropriately. It is, for example, improper to advocate the view of the side that employs you. It is, however, quite proper to advocate the propriety of your methodology and the examination results and conclusions that reasonably stem from it. You can only do this if your methodology is correct and that you have drawn valid and justifiable conclusions from the results obtained.

The transfer of technical information between members helps insure that methodology is sound. The transfer of philosophies helps insure that conclusions are justified and that the method of presentation via written reports and testimony is appropriate. Both of these transfers require communication. This is where you come in. Some of you communicate within the CAC through technical papers, others through discussion groups, panels or committee assignments. These processes are rather formal. Informal communication takes place between individuals. This latter type is often the most valuable. Within this broad framework, decide on how you can contribute and try hard to make it meaningful.

We have the most elaborate Ethics Code and procedure for enforcement of any Forensic Science Society. But don't think that we are alone in having to spend a lot of time and energy on ethical matters. We are not. The difference is that we have the best thought out and written guidelines in this area.

I'm proud of the CAC. I'm just now beginning to realize how much effort and hard work has been accomplished by past (and present) Board members, committee members, etc. within our organization.

I find myself in the company of very capable and motivated Board and Committee members. With their help, I'm looking forward to a good year and sincerely hope that during my year as president I can contribute to our tradition.

Sincerely,

John E. Murdock
CAC President

Employment Opportunities

(Members actively seeking employment are encouraged to contact the Editorial Secretary to keep informed of employment opportunites arising between Newsletters. This is most important for those considering positions outside California. Also, for those positions listed there is often additional information which may be obtained from the Editorial Secretary.)

CRIMINALIST OR SENIOR CRIMINALIST, LOS ANGELES COUNTY MEDICAL EXAMINER-CORONER

Criminalist position requires a Bachelor's degree in criminalistics, chemistry, biochemistry, or a closely related scientific field including at least eight semester hours of general chemistry and three semester hours of quantitative analysis.

Senior Criminalist Position requires the above plus two years of professional forensic science laboratory experience. A Master's degree in criminalistics, chemistry, biochemistry, or a closely related field may be substituted for one year of experience.

Position becomes available for year beginning July 1, 1984. Contact: Gary L. Siglar, Chief; Forensic Sceince Laboratories Division; Chief Medical Examiner-Coroner; County of Los Angeles; 1104 North Mission Road; Los Angeles, CA 90033. (213) 226-8041.

SUPERVISING CRIMINALIST, LOS ANGELES COUNTY MEDICAL EXAMINER-CORONER

Requires the qualifications listed for Senior Criminalist above, plus one year's experience at the level equivalent to Senior Criminalist.

Position becomes available for year beginning July 1, 1984. Contact: Gary L. Siglar (see above listing).

PHOTO LAB SUPERVISOR, LAS VEGAS METROPOLITAN POLICE DEPARTMENT.

Requires twelve semester hours of photography course work and four years of full time experience in photographic laboratory processing and prhotographic production, one year of which was at least at the level of a lead worker; OR an equivalent combination of related training and experience. Must be capable of moving heavy photo lab equipment, be on call for emergency situations, and possess a valid Nevada Driver's Licence at the time of employment. Contact: Las Vegas Metropolitan Police Department Personnel Bureau, 200 S. 3rd St., 4th floor, Clark County Courthouse. (702) 386-3497. DEADLINE: July 26, 1984.

TOXICOLOGIST, PALM BEACH COUNTY CRIME LABORATORY, FLORIDA.

Requires a B.S. degree in Chemistry or Biology with a minimum of four years experience in forensic or clinical toxicology. Send Resumes to: Mr. Jay Pintacuda; Crime Laboratory; Palm Beach County Sheriff's Office; 3228 Gun Club Road; West Palm Beach, Florida 33406. (305) 471-2000.

Announcements

Fall Seminar in San Diego

The 64th Semi-Annual Seminar will be held at the Town & Country Hotel in San Diego, October 24-27, 1984. The format will be generally the same as past CAC seminars with a mixture of papers and Study Group activities. There will be two luncheons and no dinner banquet. Greater participation from the Exhibitors is being encouraged in the form of workshops and demonstrations.

FBI Special Agent Deadman will be presenting a paper on the Wayne Williams case and a prominent San Diego Attorney, Alex Landon, will be a luncheon speaker.

The call for papers and other announcements will be forth coming in early July. An early response for lodging at the hotel is encouraged as rooms can be quite scarce during October in San Diego. The prices will be $55 single and $65 double.

For any suggestions or information contact John Simms or James Stam at (619) 236-6505.

Special Thanks to May Seminar Hosts

Special thanks to President-Elect Stephen Cooper, Neta Apple, Juan Bergado, Ray Jensen, Kathy Trubschenck and Eleanor Weston for a technically and socially excellent seminar. Thanks also to Ray Davis for providing a Hospitality Suite with an ongoing hosted bar. The CAC offered to reimburse Ray, but only after considerable prodding did he agree to split the costs.

Jan Bashinski Receives 1984 Distinguished Member Award

The Awards Committee is pleased to announce Jan Bashinski of the Oakland Police Department Criminalistics Laboratory as the 1984 recipient of the Distinguished Member Award. The recipient of this award is selected on the basis of contributions made to the Association and the profession. Ms. Bashinski has received a plaque from the Association.

Breath Alcohol Retention - CAC Input to Supreme Court

The CAC has taken an official position on the question of Breath Alcohol Retention upon the advice of an Ad Hoc Committee and the Public Health Liason Committee. The recommendations of these committees and the policy adopted by the Board of Directors appears in this newsletter. Both documents have been provided to the Court for consideration.

CAC Board Meeting Schedual 1984-1985

The CAC Board of Directors is schedualed to meet on the following dates during this fiscal year: August 17, October 23 or 24, January 11, March 15, and May 15 or 16. Please contact CAC President John Murdock as the meeting dates approach for meeting times and locations.

Newsletter Publication Schedual - Deadlines for Submission

The CAC Newsletter is published quarterly on the first day of March, June, September, and December. Materials submitted for publication should be received by the Editorial Secretary 15 days prior to the publication date. From time to time contingencies delay publication and materials may be included which are received after this date. Please contact the Editorial Secretary if you need information regarding upcoming Newsletters.

The March and September Newsletters contain information and agenda for the upcoming Semi-Annual Seminar. Abstracts from the preceeding Seminar normally appear in the June and December Newsletters, and the annual CAC Salary Survey appears in the December Newsletter.

There will be a special mailing this summer which will include the 1984-1985 CAC Roster and Abstracts from the last three CAC Seminars.

University of Pittsburgh Forensic Chemistry Program Discontinued

Richard Howe, Assistant Chairman of the University of Pittsburgh Department of Chemistry has announced the termination of the graduate program in forensic chemistry. In a letter to Richard Tontarski, President of the Mid-Atlantic Association of Forensic Scientists, Richard Howe thanks the Association for its support and states:

> "For 14 years, the University of Pittsburgh and the Allegheny County Crime Laboratory have jointly sponsored this graduate program. The synergistic relationship that existed between the University and the Crime Lab long served as the keystone of our unique program.
>
> Unfortunately, current events in Allegheny County have eroded this cooperative relationship. After an excruciating period of evaluation, our department came to the realization that we could not in good faith bring in a new class of forensic students this fall and guarantee them the same high quality educational experience and intensive laboratory internship that our program has maintained through the years. Although contingency plans for continuing the program on campus with a revised format were available, they were ruled out since such actions would have led to a denigration of our reputation and would have been a disservice to future students and our current program alumni."

Association Activities

Northern Section Meeting - March 30, 1984

A Northern Section Meeting was hosted by Forensic Science Associates at Lorenzo's in Oakland. The speaker was Ken Moses of San Francisco Police Department who spoke on the city's Automated Fingerprint Identification System (AFIS).

Southern Section Meeting - June 7, 1984

The Los Angeles Police Department Criminalistics Laboratory hosted the meeting on Thursday, June 7, 1984 at the Rustic Feast restaurant in Glendora. The speaker was Blair Eckert, a Los Angeles Police Department Polygraph Examiner. Mr. Eckert spoke on "The State of the Art of Polygraph Examinations and The Polygraph Examinations of John DeLorean." He mentioned briefly the background of polygraph examinations. Information was then presented on the state of the art of polygraph examinations.. Mr. Eckert spoke about the DeLorean polygraphs by both the federal government and the defense. Mr. Eckert was an expert witness who offered testimony after reviewing the tapes and graphs of the previous polygraph examinations of John DeLorean.

STUDY GROUP MEETINGS

(The following Study Groups are currently active. For further information regarding one of these groups, or to be placed on a mailing list, contact the member listed.)

South:

Arson/Explosive	Mel Kong
Drug	Darryll Clardy
Serology	Barbara Johnson, Carol Rhodes, Dave Sugiyama
Trace Evidence	Ed Rhodes, Sandy Wiersema

North:

Serology	Gary Sims
Trace Evidence	Marty Blake, Terry Spear

Trace Evidence Study Group - South (S. Wiersema, E. Rhodes)

5/4/84. The group met at Santa Ana Police Department to review the recent McCrone Forensic Microscopy Course held at Orange County, to discuss the trace evidence papers presented at the American Academy meeting in Anaheim, and to discuss the upcoming GSR workshop.

The Trace Evidence Study Group met on June 7, 1984 prior to the dinner meeting. The study group had 19 people in attendance and was led by Greg Matheson. The topics covered were the trace evidence papers and the GSR workshop at the Monterey Seminar.

Ed Rhodes, co-chairman of the Trace Evidence Study Group, has indicated that the next meeting will be on August 16, 1984 prior to the dinner meeting. One of the topics will be laboratory collections of trace standards. Other topics will be stated later.

Trace Evidence Study Group - North (J. Spear, M. Blake)

6/22/84. The Group met at Oakland Police Department Crime Lab. Pete Barnett critically discussed Mary Ann Strauss' work on the probabilistic evaluation of hair comparisons which has recently appeared in The Microscope.

Also discussed were characteristics of the Mystery Fiber distributed by Steve Shaffer at the March meeting. Anyone with analytical data regarding the fiber should transmit it to Steve prior to the next meeting.

The group will be compiling a list of Contacts, specialists in various areas relating to trace evidence. Marty Blake will be coordinator. Details regarding this project will be forthcoming, meanwhile please collect names of specialists who you have found useful.

Arson/Explosives Study Group (M. Kong)

This study group has been active in the South for the past few years, although attendance has been low. Increased activity is anticipated following the Olympic games.

Serology Study Group - North (G. Sims)

Gary Sims of the Institute of Forensic Sciences is reorganizing this study group in the North. Please contact him to schedual topics or to volunteer participation in reorganization.

Drug Study Group (D. Clardy)

The Drug Study Group met on June 7, 1984 prior to the dinner meeting. There were 28 people in attendance. The study group was chaired by Darrell Clardy. Topics discussed included the following:

1. Pseudophenty1 and Safety presented by Jim Jacobs for Sharon Lynch. MTPT by-product causing a Parkinson like disease.
2. A new P2P Synthetic Procedure by Tom Abercrombie. A fast but very toxic method in a plastic bag.
3. Psilocyn/Psilocybin Analysis presented by Tom Abercrombie, Jim Jacobs and Wayne Moorehead. Problems in identification even by GCMS.
4. New Extraction Procedure for LSD by Jim Jacobs. Usage of hexane to eliminate contamination.
5. Cocaine Isomerism presented by Tom Abercrombie and Ray Wells. Problems with identifying D and L cocaine.

The next Drug Study Group will be held on August 16, 1984 prior to the dinner meeting. Topics that will be discussed will include D and L cocaine and their isomeric structures, yields of P2P synthesis, psilocyn/psilocybin procedures, Fourier IR and a Drug Study Sub Group presentation.

Serology Study Group - South (B. Johnson, D. Sugiyama, C. Rhodes)

The Serology Study Group met on May 24, 1984 at the Orange County Sheriff's Criminalistics Laboratory. The study group had 29 people in attendance and was co-chaired by Barbara Johnson, Carol Rhodes and Dave Sugiyama. The topics discussed were various laboratories methodologies, serology papers presented at the Monterey Seminar and several hypothetical statistical problems.

The next Serology Study Group meeting will be held on July 12, 1984 at the Orange County Sheriff's Criminalistics Laboratory. The topic will be the FBI Electrophoresis Symposium. The Serology Study Group will also have a meeting on August 16, 1984 prior to the dinner meeting. This session will involve the dinner meeting speaker George Garritty from the Red Cross.

COMMITTEE ASSIGNMENTS 1984-1985
President John Murdock

	Committee Chairs, 1984-1985	Committee Members	
Awards	Karen Sheldon Contra Costa Co. Sheriff's Dept. 1122 Escobar Street Martinez, CA 94553 (415) 372-2455	Bruce Fukayama Carol Rhodes	
By-Laws	Peter Barnett Forensic Science Associates 1450 E. 53rd Street Emeryville, CA 94608 (415) 653-3530	V. Parker Bell Frank Fitzpatrick	
Ethics	Jan Bashinski Oakland Police Dept. 455 7th St. Rm. 608 Oakland, CA 94607	Jerry Chisum Edward Blake	
Historical	Duayne J. Dillon P.O. Box 488 Martinez, CA 94553 (415) 228-9292	Jim Brackett Jack Cadman L.B. (Ed) Miller Marty Blake	Lowell Bradford Hiram Evans Donald Harding Louis Maucieri
Nominating	Hiram Evans San Bernardino Co. Sheriff 200 S. Lena Road San Bernardino, CA 92415 (714) 383-7344	Laurie DeHaan Victor Reeve Theresa Spear David Sugiyama	
Public Health	Kathryn J. Holmes Contra Costa Co. Sheriff's Dept. 729 Castro Street Martinez, CA 94553 (415) 372-2962	No other members	
Public Relations	Robert Ogle, Jr., Consultant 124 Valley Oak Lane Vallejo, CA 94591 (707) 553-1733	No other members	
Training & Resources	John Patty Contra Costa Co. Sheriff's Dept. 1122 Escobar Street Martinez, CA 94553 (415) 372-2455	Steve Cooper Benny Del Re Ken Fujii Jim Stamm Debbie Wakida	
Accredidation Liaison	Enrico Togneri Washoe Co. Sheriff P.O. Box 2915 Reno, NV 89505 (701) 785-4637		

California Association of Criminalists

OFFICE OF

THE AWARDS COMMITTEE

Dear Collegue:

The General Section of the American Academy of Forensic Sciences has again given our Association $100 to be used to award one of our members in recognition of contributions made to the profession. The American Academy has asked that the fund be used to honor individuals who have been employed in the profession for fewer than five years. These funds are distributed annually in conjunction with our association's Paul Kirk Award. The award typically consists of the cash stipend provided by the AAFS plus a plaque paid for by association funds. However, this year the Paul Kirk Award will coincide with the American Academy Regional Association Award for 1984 as well. The selection criteria for this award parallels our Paul Kirk Award in addition to seeking nominees who have been involved in a research project or the like which could be presented as a paper at the February 1985 American Academy meeting in Las Vegas. The Awards Committee is now asking for nominations for the 1984 recipient of this Award.

Nominations, using the attached form, will be submitted to the Awards Committee by mail. The Committee will screen the candidates' qualifications and submit their recommendation(s) to the Board, who will then select the recipient of the award. Although candidates must be members of the CAC, nominating parties need not be. This will allow individuals in other professions who interact with potential candidates (e.g. detectives, attorneys) to submit nominations. No self nominations will be considered.

The nomination period will be open from August 1 - 31, 1984. No nominations will be accepted after this period. The award recipient will be announced at the Fall Seminar.

In addition to the five year qualifying period assigned by the American Academy, the Awards Committee has established the following criteria for candidate qualifications:

1) The five year qualifying period is defined as October 1979-October 1984.

2) The employment shall be full-time employment and shall not include time in pre-professional positions, such as intern or laboratory technician, even though these positions may have been full-time positions.

3) The candidate must be a CAC member (in any status) at the time of nomination.

Continued

4) During the five year qualifying period, the candidate shall also have demonstrated interest in a professional forensic science organization such as, but not limited to, the CAC.

5) Members who meet the above criteria can qualify for the award by any one (or more) of the following contributions to the profession:

   a. Casework which provided a significant contribution to the investigation or adjudication of the case (one or more cases).

   b. Research and dissemination of the results in the form of publication (i.e. journal, newsletter) or paper at a seminar, workshop or study group, etc.

   c. Sustained production of papers or technical notes in newsletters or at seminars.

   d. Training to law enforcement agencies, other users of criminalistics services, or other criminalists. Financial compensation may or may not have been received.

   e. Involvement in study groups in the form of organizing speakers or group data gathering projects which will produce information that will be made available to the forensic science community.

   f. Development or design of materials or items to be used by criminalists or law enforcement agencies, to ensure evidence integrity or enhance its quality, with an effort made to dissiminate this information (e.g. evidence collection kits).

   g. Any other unusual or significant contributions to the improvement of the profession of criminalistics.

5) The candidate shall have a paper describing original research, a technical note or an unusual case to present at the American Academy meeting. This project:

   a. May be completed but never presented.

   b. May have been presented at a previous CAC seminar.

   c. May be in the research phase, as long as it will be completed by February 1985.

The Awards Committee is pleased that we will have this opportunity to recognize our newer colleagues who have contributed significantly to the profession. We would like to encourage as many nominations from each member or laboratory as possible.

Sincerely,

Karen Sheldon

Karen Sheldon
Awards Committee Chairman

RETURN TO: Karen Sheldon. Awards Committee Chairman
1122 Escobar St., Martinez, CA. 94553

Paul Kirk Award
NOMINATION FORM

Please refer to the criteria described on the attached letter. Use this form only, use the back if necessary. Any questions should be directed to Karen Sheldon (415) 372-2455.

CANDIDATE: _____

EMPLOYMENT WHERE DATES

CONTRIBUTIONS: (Provide information if applicable to candidate. Use the back or additional pages if necessary)

a. Casework which provided a significant contribution to the investigation or adjudication of the case (case name, year, type of work done)

b. Research Projects (if published, list journals or CAC newsletter)

c. Papers or technical notes presented at seminars, study groups or workshops (give title and where presented)

d. Training given to users of criminalistics services or other criminalists.

e. Involvement in study groups.

f. Design of evidence collection kits or other items for use by criminalists or law enforcement agencies.

g. Any other unusual or significant contributions to the profession of criminalistics.

CAC membership status: Regular __ Provisional __ Corresponding __ Member since(yr)_____

Membership in other forensic science organizations: _____(Give length of membership in each)

Does candidate have a completed paper for presentation at the AAFS meeting in Feb. 1985?
Yes __ No __ Title _____
If no, could candidate have a paper prepared by Feb. 1985? Yes __ No __
Subject matter of paper being presented _____

NOMINATION PARTY (Please list two additional references should a clarification by the Awards Committee be needed)

NAME PHONE

1.

2.

3.

California Association of Criminalists

OFFICE OF

Public Health Liaison Committee

Recommendation to the Board of Directors regarding Breath Alcohol Sample Retention

The five members* appointed to the Ad Hoc Committee on Breath Alcohol Sample Retention by the President of the Board have-- 1) established the minimum standards of performance and procedure which must be met by a breath alcohol retention device and its method of analysis before they would be scientifically acceptable to the criminalistics community for use in referee analysis for a defendant; 2) evaluated the available data for presently marketed breath retention devices; and 3) examined the merits of retained blood or urine samples in lieu of breath samples. The Public Health Liaison Committee is recommending in this document that the California Association of Criminalists adopt a position regarding breath alcohol retention based on the findings of the Ad Hoc Committee.

I. Standards of Performance and Procedure:

Unlike an immediate breath test instrument where the breath sample is introduced directly into the instrument without manipulation of the sample, the reliability of a breath capture method may be affected at a number of different stages in the course of arriving at an analytical result. (1) The reliability of the retained sample will be affected by the ability of the immediate breath test instrument or other method of capture to accurately deliver the breath sample to the retention device. This is unrelated to the ability of the breath test instrument to give a reliable immediate breath test. (2) Reliability of the retained sample will also be affected by the ability of the retention device to retain the alcohol sample unaltered until the device can be analyzed. (3) Finally, the reliability will be affected by the ability of the method of analysis used for the retained sample to produce accurate and precise results.

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*Lowell W. Bradford, Chairman, Forensic Scientist, Private Consultant
William L. Casper, Criminalist, California Department of Justice Laboratory
Lucien C. Haag, Private Consultant, Forensic Science Services
Kathryn J. Holmes, Supervising Criminalist, Contra Costa Co. Criminalistics Laboratory
John L. Ragle, Director, Orange County Criminalistics Laboratory

The testing of retained breath samples can be likened to the situation involving blood alcohol samples which must be collected and retained until the time of analysis. Thus, the analysis of the captured breath samples must be subjected to the same procedural controls which are applied in California to blood and urine samples. Such controls for breath retention techniques, which are derived from blood and urine regulations in Title 17 of the California Administrative Code, are summarized below.

A. Standards of Procedure

1. At least two breath samples shall be separately collected and analyzed for each test subject. Duplicate testing aids in the detection of random errors from capture, retention, or analysis because the probability is small that such errors will occur consecutively and with the same degree of magnitude in both samples.

2. At least one blank retention device shall be analyzed concurrently with the breath samples. For sorbant-type devices, the blank shall also be collected concurrently with the breath samples. This will permit a random check of the retention devices for contamination by alcohol. If the retention devices is a sorbant-type (ie., absorbs alcohol vapors from the whole breath sample), the analysis of a blank will permit the detection of background alcohol absorbed from the environment.

3. At least one quality control or reference sample of known alcohol concentration shall be collected and analyzed concurrently with the breath samples. This will permit a check of the collection, storage, and analysis method for systematic errors.

4. At least one secondary alcohol standard of a known alcohol concentration shall be analyzed concurrently with the breath samples. This standard may be collected at a later time. The analysis of the secondary alcohol standard will permit the analyst to calibrate the analytical method in order that the results of the analysis of the reference and breath samples may be interpreted.

5. The analytical method shall be routinely checked for accuracy and precision with solutions of known alcohol concentration.

Because the purpose of a referee analysis of a captured breath sample by a defendant is to check the accuracy of a test result on an immediate breath test instrument, it is important that any breath retention and analysis system meet or exceed the accuracy and precision requirements of the immediate breath test instrument. Less stringent requirements can result in erroneous or inaccurate breath capture results which cast unwarranted suspicion on the original breath test. Because error may be introduced at any stage, the performance standards for accuracy and precision must apply to the combined breath capture retention and analysis process. Those performance standards which breath retention techniques must meet are

derived from blood and urine regulations in Title 17 of the California Administrative Code and are summarized below. They differ from the blood and urine regulations in that they allow a wider range of accuracy at the higher blood alcohol levels.

B. Standards of Performance

1. Accuracy and Precision for the combined collection, storage and analysis procedure:

   a. The quality control or reference sample analyzed concurrently with the breath samples must give a value which is within ± 0.01% BAC equivalent or ± 10% of the known value of the standard, whichever is greater.

   b. The analysis of duplicate breath samples must give values which are no more than ± 0.02% BAC of one another or ± 10% of the mean, whichever is greater.

   c. The analysis of the blank sample must give a value which is less than 0.01% BAC.

2. Test results of the combined breath collection, storage, and analysis procedure must correlate with the results of blood alcohol tests when the breath and blood samples are taken at approximately the same time. The required level of correlation shall be the same as that required of immediate breath test instruments as established by Title 17 of the California Administrative Code.

II. Currently Available Breath Capture Devices:

Breath capture devices which are presently marketed and/or reported in the scientific literature consist of two basic types: whole breath devices which capture a fixed volume of breath; and sorbant tubes or devices which remove the alcohol from the breath (with materials contained within that absorb the alcohol such as silica gel, molecular sieve, or magnesium perchlorate).

A. Whole Breath Devices

One whole breath device, the indium encapsulation tube, has been used by one California laboratory for law enforcement for a number of years. When this device is used in compliance with the procedures set forth in Title 17 of the Administrative Code, which require the use of appropriate standards and controls, acceptable limits of accuracy and precision may be obtained and unacceptably high results do not occur.

Errors with the indium device generally result in falsely low or negative readings which favor the defendant. Such errors may result from leakage due to improper sealing or from the failure to obtain a

proper sample from the defendant. Some experimental data indicates that a properly sealed device will not lose alcohol when analyzed at periods greater than 90 days after collection; however, the result may still be in error because a proper sample (from deep lung air) was not collected. Only breath collected from the end of an exhalation will accurately correspond to the alcohol level of a blood sample collected at the same time.

Although a device which favors the defendant may be suitable for law enforcement, it is not suitable as a device for reanalysis by the defendant. Erroneously low or negative results would unfairly cast doubt on the original test.

B. Sorbant-Type Devices

Sorbant-type devices are not as susceptible to leakage as are whole breath devices. However, the breath sample is usually introduced to the sorbant tube by exhausting the sample through it from the immediate breath test instrument. The reliability of the technique is in part dependent upon the ability of the breath instrument to transfer the breath sample, a function for which the breath instruments approved for use in California were not designed, and a potential source of considerable error.

Experimental evidence indicates that errors as great as $\pm$ 18% occur in both breath and calibration samples that have been captured and analyzed under ideal conditions using the most reliable of the silica gel sorbant tubes. These errors occur randomly in all of the sorbant type devices. The relative error is even greater with other types of sorbants.

Dr. Donald R. Wilkinson, developer of the "Toxtrap" silica gel tube reported in the Journal of Forensic Science, Vol. 29, No. 1: "It is scientifically impossible to achieve the same degree of precision and accuracy in samples that are trapped, desorbed and reanalyzed that one achieves using frequently calibrated, stationary primary evidential breath testing equipment."

It is clear from the available literature that there are limitations to the reliability of all of the currently available breath capture devices. Therefore, the finding of different results using a capture device as compared to an immediate breath test instrument cannot be construed to mean that the breath instrument was in error. On the contrary, the most likely explanation would be that the capture device was in error.

III. Merits of Blood and Urine Tests vs. Breath Tests for Analysis by the Defendant:

In addition to the above mentioned problems of reliability, retained breath samples will be unable to detect many claimed sources of error that can be

detected using blood or urine samples. The analysis of retained blood samples, and to a lesser extent, urine samples, are more valuable because they eliminate errors from the following sources.

A. Mouth Alcohol

The presence of alcohol in the mouth can result in an erroneously high reading in both retained breath samples and immediate breath tests. Contamination will carry over to the sorbant type retention device from the breath instrument or may be introduced directly from the test subject into whole breath retention devices.

B. Inadequate Breath Samples

Test subjects may be unable or unwilling to provide deep lung air samples resulting in erroneously low readings from either a retained or immediate breath sample. Erroneously low alcohol levels would be carried over to sorbant devices by the breath instrument. Erroneously low readings may also be obtained with whole breath devices despite accurate results with the immediate breath test.

C. Theoretical Variations in Breath:Blood Ratio

It is frequently claimed that variations exist between individuals in the ratio of alcohol in the breath to alcohol in the blood. Thus, it is argued, the breath instruments in use in California, which are required to use a 2100:1 ratio in converting breath alcohol to equivalent blood alcohol levels may theoretically cause erroneously high results in those individuals who have lower conversion ratios. However, a conversion ratio must also be applied to breath retention devices, because drinking driver proscriptions are defined in terms of blood alcohol levels. Any individual variation from the accepted ratio would also cause errors in the blood alcohol level derived from the analysis of a breath retention device. Thus the captured breath sample cannot aid the defendant in showing that the breath alcohol test was higher than the equivalent blood alcohol level.

D. Malfunctioning Sample Retention Equipment

Malfunctions in equipment which collects or retains the breath sample may cause erroneous results. However, obtaining results which differed for this reason from the original breath test would cause an unjustified suspicion of the original breath test although the retained breath sample was in error.

In addition to the examples described above, blood and urine samples can detect claimed errors in the original breath test from the presence of acetone or other organic materials or from radio frequency interference. If results are obtained from a referee blood or urine sample which differ from the original breath test, it is possible to reanalyze the blood or urine by another method or laboratory to verify the results. However, this is not possible with retained

breath samples which are destroyed upon analysis.

Given the advantages of retained blood or urine samples and the drawbacks of retained breath samples, the Ad Hoc Committee favors the collection of blood or urine should the courts require the collection of a sample for the defendant.

IV. Stability:

It is apparent that a retained breath sample must be stable until the opportunity to analyze the sample is presented. The Ad Hoc Committee did not recommend a stability time requirement for breath capture devices. The appropriate minimum time for stability is more a function of needs of the defendant and the judicial system than a scientific issue.

In the absence of a specific time requirement, the Ad Hoc Committee recommends that the breath capture device be required to meet the Standards of Performance at the time of analysis in order to be acceptable. Thus, the combined breath collection, storage, and analysis procedure used by the defendant must demonstrate acceptable correlation in controlled studies for a period of time which corresponds to the time between the collection and analysis of the defendant's samples. Samples captured and analyzed for the defendant must also meet the accuracy and precision requirements for blank, reference, and duplicate samples. Samples which do not meet the accuracy and precision requirements or which do not have evidence of acceptable correlation must be deemed unacceptable for use by the defendant in legal proceedings.

V. Recommendations

The Public Health Liaison Committee recommends:

A. that the CAC take the position that blood or urine samples are preferable for analysis by the defendant over retained breath samples;

B. that the CAC adopt the Standards of Procedure and Standards of Performance set forth in this report as the minimum acceptable criteria which must be met by a breath retention system to be acceptable for use as a referee system;

C. that the CAC take the position that only those breath samples captured and later analyzed for the defendant which meet the Standards of Procedure and Standards of Performance are acceptable for use in legal matters.

Respectfully submitted,

Kathryn J. Holmes

Kathryn J. Holmes
Chairperson

cc: Lowell Bradford
William Casper
Lucien Haag
John Ragle

CALIFORNIA ASSOCIATION OF CRIMINALISTS POLICY ON BREATH ALCOHOL RETENTION

With regards to sample retention for use in referee analysis for a defendant in driving-under-the-influence cases, the CAC policy is as follows:

1. **Blood or urine are preferable for retention for later analysis by the defendant over retained breath samples.**

2. **The Standards of Procedure and Standards of Performance as outlined . below are the minimum acceptable criteria which must be met by a breath retention system to be acceptable for use as a referee system.**

   A.Standards of Procedure

   1. At least two breath samples shall be separately collected and analyzed for each test subject. Duplicate testing aids in the detection of random errors from capture, retention, or analysis because the probability is small that such errors will occur consecutively and with the same degree of magnitude in both samples.

   2. At least one blank retention device shall be analyzed concurrently with the breath samples. For sorbant-type devices, the blank shall also be collected concurrently with the breath samples. This will permit a random check of the retention devices for contamination by alcohol. If the retention device is a sorbant-type (i.e.,absorbs alcohol vapors from the whole breath sample), the analysis of a blank will permit the detection of background alcohol absorbed from the environment.

   3. At least one quality control or reference sample of known alcohol concentration shall be collected and analyzed concurrently with the breath samples. This will permit a check of the collection, storage and analysis method for systematic errors.

   4. At least one secondary alcohol standard of a known alcohol concentration shall be analyzed concurrently with the breath samples. This standard may be collected at a later time. The analysis of the secondary alcohol standard will permit the analyst to calibrate the analytical method in order that the results of the analysis of the reference and breath samples may be interpreted.

(continued)

5. The analytical method shall be routinely checked for accuracy and precision with solutions of known alcohol concentration.

B. Standards of Performance

1. Accuracy and Precision for the combined collection, storage, and analysis procedure:

   a. The quality control or reference sample analyzed concurrently with the breath samples must give a value which is within ±0.01% BAC equivalent or ±10% of the known value of the standard, whichever is greater.

   b. The analysisof duplicate breath samples must give values which are no more than ±0.02% BAC of one another or ±10% of the mean, whichever is greater.

   c. The anlysis of the blank sample must give a value which is less than 0.01% BAC.

2. Test results of the combined breath collection, storage, and analysis procedure must correlate with the results of blood alcohol tests when the breath and blood samples are taken at approximately the same time. The required level of correlation shall be the same as that required of immediate breath test instruments as established by Title 17 of the California Adminstrative Code.

3. Only those breath samples captured and later analyzed for the defendant which meet the Standards of Procedure and Standards of Performance outlined above are acceptable for use in legal matters.

Moved, Seconded, and Passed by Board of Directors Action on April 9,1984.

John D. DeHaan, President

GENESIS OF THE
CALIFORNIA ASSOCIATION OF CRIMINALISTS

By: LOWELL W. BRADFORD

The list of names that was given in the March 1984 Newsletter on page 13 is not the correct list of attendees. My apologies to those concerned.

Two invitees did not attend, so that there were 14 original participants. Fifteen of the invitees became charter members at the time of founding, which was several years later.

Attached is the correct list of those invited who attended with addresses and spellings copied from the original letter.

NAME	STATUS IN 1953	STATUS IN 1983
1. James W. Brackett, Jr.	Asst. Criminalist, Santa Clara County	Director, Laboratory of Criminalistics, Santa Clara County
2. Lowell W. Bradford	Director, Laboratory of Criminalistics, Santa Clara County	Independent Consultant in Forensic Science
3. David Q. Burd	Criminologist, State of California	Retired
4. W. J. Cadman	Chief Criminalist Orange County	Prof. of Criminalistics,
5. Robert M. Cooper	Crime Laboratory, Oakland Police Dept.	Crime Laboratory Director, Alameda County
6. John E. Davis	Criminalist, Oakland Police Dept.	Resigned
7. Roger S. Greene	Criminologist, State of California	Deceased
8. Donald M. Harding	Criminalist, Pasadena Police Dept.	Supervising Criminalist, Laboratory of Criminalistics, Santa Clara County
9. William W. Harper	Consultant	Retired
10. Harry Johnson	Criminologist, State of California	Retired
11. Lee F. Jones	Asst. Forensic Chemist, Los Angeles Police Dept.	Deceased
12. Paul L. Kirk	Prof. of Criminalistics, U.C., Berkeley	Deceased
13. George Lacey	Chief Forensic Chemist, Los Angeles Sheriff's Office	Retired
14. Ed O'Neill	Assoc. Prof., School of Criminology U.C., Berkeley	Did not become a member
15. Ray Pinker	Chief Forensic Chemist, Los Angeles Police Dept.	Deceased
16. Hillard Reeves	Criminalist, Richmond Police Dept.	Deceased

HELPFUL HINTS FOR A BETTER ELECTROPHORESIS PLATE

David Sugiyama and Katherine Vukovich
Los Angeles Conuty Sheriff's Department Criminalistics Laboratory

The trouble shooting techniques presented here fall into two categories:

I. REMINDERS of details or procedures that can easily be overlooked.

II. Help! on new and improved procedures to get better or more consistent results than before.

Here are some reminders that this laboratory has proposed:

1.) Be aware of the type of water being used.

2.) Check buffer pH properly.

3.) Know your chemicals!

4.) Check power supply cables and continuity between tank chambers.

5.) Be sure voltage measurement is across the gel.

6.) Make sure the wick bridges to the plate contact the entire width of the plate.

Now, for some HELP!

For Group I plates, the greastest improvement has been seen with using distilled and deionized water for all buffers.

The starch-agarose gel is comprised of 1% hydrolyzed starch and 1% Sigma Agarose, Type I. Heating the 20 x 15 cm plate in a 60°C oven allows for more uniform results and makes pouring the gel much easier. The run should be at 300 volts for 3.5 hours at 30-40 mA.

Upon development, wiping excess EsD reaction buffer from the filter paper keeps diffusion of bands and background fluorescence to a minimum. PGM development using Meldola Blue (see last page) gives quick results without darkening the background.

GLO development can be much improved using a modified reaction overlay:

12 mg reduced glutathione
1 ml 2.5% Methyl glyoxal solution, pH 6.2
10 ml GLO reaction buffer

Incubate the GLO overlay at 37°C for 30 minutes. Then, remove overlay and incubate an additional 10 minutes. Pour the iodine-agarose solution hot.

For Group II plates, the greatest improvement has been seen with high vacuum degassing of the hydrolyzed starch solution. The vacuum pump used in this lab is a 2-stage, vented exhaust pump, with a 25 L/minute capacity, giving 0.1 milltorr vacuum or better. Quick degassing using this pump gives more uniform results, better EAP mobility, and tighter band patterns overall. Heating the 20 x 15 cm plate in the 50°C oven, again, makes pouring the gel much easier. The run is for 17 hours at 150 volts with a current of 10-20 mA.

Before EAP development, we've found that blotting as much excess water as possible from the top and from under the gel gives less smeary AK bands.

Also, for EAP development, soak up the reaction mixture on a 15 x 14 cm Whatman #2 filter paper. Drain off the excess buffer and allow to sit on a glass plate for 15 minutes before the end of the Group II run. Then, place the filter paper on the starch and let develop at 37°C for 30 minutes.

For AK and ADA development, the Medola Blue substitution gives very nice results.

PGM subtyping on agarose is performed as described by the FBI from a modified procedure by Brian Wraxall. The only modifications we have made have been as follows in the reaction mixture:

Glucose - 1 - phosphate + 1% G-1, 6-DP	0.035 g
NADP	0.004 g
MTT	0.0025 g
Medola Blue	400 ul
G-6-P Dehydrogenase	30 ul

The plate is run at 400 volts for 4 hours with a current somewhere between 40 and 50 mA.

Generally, fresh buffers should be used for each run, remembering to use distilled and deionized water.

Upon development, should post-mortem samples begin to overdevelop, slightly slitting the gel and overlay on either side of the offending samples should keep the formazan production from obscuring adjacent samples.

David M. Sugiyama
Los Angeles County Sheriff's
Criminalistics Laboratory

Presented at 1984 California
Association of Criminalists
Spring Seminar
Monterey, California

The authors wish to express their thanks to the members of the Serology Section who contributed to this paper: D. Hong, B. Johnson, Sam Le, S. Renteria & R. Takeshita.

MELDOLA BLUE - A REPLACEMENT FOR PMS

Our laboratory experimented with a PMS replacement in the development overlays for PGM, AK and ADA. The compound, MELDOLA BLUE (8-dimethylamino-2,3-benzophenoxazine), has provided somewhat quicker development time of banding patterns with the added attraction of a clearer background. This enables one to read weaker samples after prolonged incubation at 37°C without the problem of increased background color.

Gary Shutler from the RCMP lab in Ottawa, Canada has been using the following recipe for PGM, AK and ADA overlays with great success.

MELDOLA BLUE STOCK SOLUTION: 5mg in 10 mls distilled water

For PGM overlay: Add 500ul stock solution with 2.5 mg MTT in 10mls reaction buffer

For AK overlay: Add 200ul stock solution with 2.5mg MTT in 10mls reaction buffer

For ADA overlay: Add 200 ul stock solution with 4mg MTT in 10mls reaction buffer

There are two sources for the Meldola Blue:

1) Pfaltz and Bauer, Inc.
Divsion of Aceto Chemical Co., Inc.
375 Fairfield Avenue
Stanford, CA 06902

2) Sigma Chemical Co.
P.O. Box 14508
St. Louis, MO 63178

David M. Sugiyama
Los Angeles County Sheriff's
Criminalistics Laboratory

BLOODY FINGERPRINT SPRAY REAGENT

John R. Patty and Michael W. Giberson
Contra Costa County Criminalistics Laboratory

Chemicals

Item	Stock #	Cost	Vendor
Leucomalachite green (grey powder-25 gr)	12,566-0	$18.70	Aldrich Company Post Office Box 2060 Milwaukee, WI 53201
Sodium Perborate (white powder-25 gr)	EM-SXO-690-1	$14.74	VWR Post Office Box 3200 San Francisco, CA. 94119 (415)468-7150
Glacial Acetic Acid (a colorless liquid-1 gallon)	JT 9507-2	$15.43	VWR See above
Alcohol, Denatured (JASCO Brand) (colorless liquid - 1 pt)		$ 1.59	ACE Hardware Stores
Freon 113 (colorless liquid - 1 kg)	EM-TX1167-3	$50.10	VWR See above
Parafilm (waxy film)	52858-076	$11.39	VWR - See above
Acetone (colorless liquid-1 pt)	EK-13606-0	$ 7.10	VWR - See above
0.1N Hydrochloric Acid (colorless liquid-1 liter)	VW 3112-3	$ 5.00	VWR See above

Equipment

Graduated Cylinder - 10 ml	24711-251	$ 5.87	VWR
- 100 ml	24711-310	8.27	See above
Nitrile Gloves - 12 pr. (comes in sizes)	32917-___	$21 75	VWR See above
Safety Glasses	33010-000	$ 4.13	VWR - See above
Spray-On Jet-Pack Sprayer	00050	$10.96 ea.	Western Tool 4541 Oakport Street
Refill Power-Pak	00052	4.29 ea.	Oakland, CA. 94601
Respirator, Organic Vapor (NIOSH approved)	56222-506	$13.17 ea.	VWR See above

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Prepared by John R. Patty and Michael W. Giberson
Contra Costa County Sheriff-Coroner's Dept., Criminalistics Laboratory Division
1122 Escobar Street, Martinez, CA. 94553

WARNING — SAFETY GLASSES, RESPIRATOR AND GLOVES MUST BE WORN WHEN MIXING OR SPRAYING THESE CHEMICALS. Glacial Acetic Acid is a strong acid. If you get it in your eyes flush with large amounts of water and seek medical help. Acid on skin should also be flushed away with water. DO NOT SPRAY THESE CHEMICALS ONTO A HOT SURFACE. Freon can decompose into toxic gas when heated and Alcohol is flammable. Leucomalachite green may be a carcinogen. Wash your hands after mixing or spraying these chemicals.*

* When spraying: The use of an airpack and the wearing of disposable coveralls, cap, shoe covers and gloves is strongly recommended. Contaminated articles and clothing should be sealed in a heavy plastic bag and disposed of.

Mixing Instructions

1. Add the following to the test tube -

   0.06 grams Leucomalachite green
   0.2 grams Sodium Perborate
   20 mls Alcohol
   10 mls Glacial Acetic Acid

2. Wrap stopper with Parafilm and stopper the test tube tightly. Shake the test tube vigorously for one minute. All the chemicals should dissolve.

3. Empty the test tube contents into the glass spray jar containing 100 ml of Freon-113. Cap the jar tightly and shake the contents to mix.

4. Screw the spraying head and power unit onto the jar. Use the mixture as soon as possible.

Spraying Instructions

1. Spray surface lightly, two or three times, holding the sprayer 14 inches or more from the surface. Prints will develop within a few seconds. Any prints which develop must be photographed because they will fade.

Notice to Property Owner

Areas which have been sprayed with this reagent, especially if in occupied homes, should be cleaned using cleaning solution. The cleaning tools should not be used to wash dishes afterwards. It is the responsibility of the officer to see that the cleaning is done.

Cleaning Solution = Acetone or 0.1N Hydrochloric Acid.

Moisten paper towels, cloths or sponges and wipe off sprayed areas. Dispose of towels and sponges in trash. Remember Acetone is flammable and toxic and Hydrochloric Acid is injurious to eyes and skin.

NOTES ON ION-PAIR EXTRACTION

John Hartmann
Orange County Sherif 's Office Forensic Science Services

A. Definitions

1. Ion-pair: the association of a cation and anion in a solvent
2. Counter-ion: the ion of charge opposite to that of the ion of interest introduced to form ion-pairs
3. Ion-pair Extraction: the extraction of an ion of interest as an ion-pair with the counter-ion into an organic solvent
4. Separation Power: the ability of an extraction to isolate a compound of interest from contaminants

B. Parameters

1. Analyte
   a. Large, nonpolar molecules will ion-pair better than small, polar ones
   b. Singly charged compounds will ion-pair better than doubly charged ones
   c. basic drugs can be protonated with dilute phosphoric or sulfuric acid.
2. Solvent
   a. polar solvents such as pentanol increase extraction but reduce separation power
   b. nonpolar solvents such as cyclohexane, benzene, carbon tetrachloride reduce extraction but increase separation power
   c. moderate proton donating solvents such as chloroform and methylene chloride are good initial choices
   d. polar proton accepting solvents such as methylisobutyl ketone and ethyl acetate can be useful in certain situations
   e. weak solvents can be mixed with stronger ones to obtain intermediate solvents
   f. increasing the volume of organic solvent relative to the aqueous will increase extraction
3. Counter-ion
   a. increasing counter-ion concentration increases extraction
   b. high concentrations of counter-ion can be readily achieved without high acid concentrations by adding the counter-ion as a neutral inorganic salt
   c. among anion counter-ions, there is a general increase in ion-pairing ability in the order: $Cl < Br < SCN, I, ClO_4 <$ alkyl sulfonates, other large organic anions
   d. among cation counter-ions, there is a general increase in ion-pairing ability of alkyl quaternary ammonium compounds with carbon number of the alkyl chains

C. Practical Aspects

1. 0.1 M phosphoric or sulfuric acid is convenient in most cases
2. 0.1 M to 1 M counter-ion concentration are usually adequate
3. The counter-ion can be removed by filtering the ion-pair containing solvent through filter paper or rayon balls and back extracting into dilute phosphoric or sulfuric acid. Even better recovery will be achieved by washing the ion-pair containing solvent with saturated bicarbonate solution and then back extracting into acid.

D. Cautions

1. SCN^- decomposes in acid solutions to yield CN^-
2. I^- in acid solutions disproportionates to yield I_3^-
3. Organic ammonium ClO_4^- and I_3^- compounds are thermally unstable. These counter-ions should be removed before drying.

E. References

1. General

a. Goran Schill, "Isolation of Drugs and Related Compounds by Ion-Pair Extraction," in Ion Exchange and Solvent Extraction, Volume 6, Jacob A. Marinsky and Yizahak Marcus, editors, Marcel Dekker, Inc (NY, 1974)

b. G. Schill, R. Modin, K.O. Borg, and B.-A. Pwersson, "Ion-pair Extraction and Ion-pair Chromatography," in Handbook of Derivatives for Chromatography, by Karl Blau and Graham S. King, editors, Heyden and Son,Inc., (Bellmawr,NJ, 1977)

c. Thomas D. Doyle and Joseph Levine,"Review of Column Partition Chromatography of Drugs," Journal of Asssociation of Official Analytical Chemists, 61(1):172-91, 1978.

2. Forensic

a. Allen R. Adair, F. Taylor Noggle,Jr., Martha S. Odom, and Mary A. Rhodes,"The ANOR (Alternate Non-Aqueous Organic Ratio) Extraction Procedure," Microgram, 16(1):220-28, 1983.
" 16(8):120, 1983.

b. Roger F. Canoff,"Ion Pairing Chromatographic Separation and Determination of Cocaine,"Microgram, 3(4):121-22, 1970.

c. Charles C. Clark,"Application of Ion-Pair Extraction to the Partition Chromatographic Separation of Some Amines of Forensic Interest,"Microgram, 8(5):63-75, 1975.

d. Roger G. Fuelster,"Rapid Separation of Cocaine from Adulterants such as Procaine and Quinine, and Subsequent Infrared Identification,"Microgram, 5(7):80, 1972.

e. Buddy R. Goldston and Carolyn N. Ruybal,"Separation of Cocaine from Lidocaine,"Microgram, 14(10):134-35, 1981.

ETHICAL DILEMMA

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Section 1. D. of the CAC Code of Ethics requires that a criminalist use generally accepted methods and reject methods which he believes to be unreliable. This would, it seems, imply to a scientist that any method which can give erroneous results without warning should be rejected. This month's Ethical Dilemma considers whether or not a technique which is considered to be unreliable should be used.

A bloodstain was tested by 5 analysts with the following results:

	A antigen	B antigen	H antigen
analyst 1	1+	2+	0
analyst 2	0	0	3+
analyst 3	0	0	3+
analyst 4	1+	2+	3/4+
analyst 5	0	0	3+

Our colleagues in the legal profession will not be surprised to learn that analysts 2,3, and 5 were working for one side of the case, and analysts 1 and 4 for the other side. It served the interest of the side retaining analysts 2, 3, and 5 to establish that the bloodstain was not type AB, and the interests of the other side were served by establishing that the bloodstain was type AB. (It should also be noted that testing of the liquid blood sample from the individual involved in the case who had type AB blood resulted in the expected results; strong A and B antigens and a weak reaction for H).

Analyst 4 was questioned concerning the differences between the results he obtained and those of analyst 1:

Q: Would it surprise you to learn that when (analyst 1) tested this... he got no O activity?

A: ...it would be interesting but not totally surprising due to the fact that he tested it a great deal of time ago.

Q: So what? O activity started growing on this jacket? Is that what you're saying?

A: No. That during the breakdown process - freezing preserves the samples, but it doean't stop the breakdown. Possibly some of the A and B activity's breaking down to H because of the fact that in ABO blood type H activity is basically the backbone, and A and B are just sugars attached to the ends. It's like a long freight

car, either you have a red caboose at the end or a green caboose and possibly some of the cabooses are just falling off or left with the trains.

Q: So these are just falling off, is that how you explain that?

A: That's one explanation.

It appears then, according to analyst 4, that ABO blood types spontaneously change from A, B, or AB to O. If this is the case, is there any way to monitor a stain to determine whether such a transmutation has occurred If not, now can ABO blood typing be used since a stain may change from one type to another, without any way of detecting that change. If this is the case, should not ABO typing be abandoned by those individuals who feel it is unreliable? Are those analysts who feel that this transmutation occurs just as likely to mention the possibility when the typing results straightforwardly support the theory of the case proposed by their client?

In reviewing the data for analyst 4, one might consider the possibility that the stain was a mixture of A, B (or AB) and O bloods. Perhaps that was another explanation that the analyst was considering when he responded in the cross examination quoted above that the cabooses falling off the train was "one explanation". On direct examination, however, his testimony did not suggest that he favored the mixture theory over the caboose theory:

Q: What was your conclusion (with respect to the ABO type on the stain from the jacket)?

A: On the stain portion of the material, I obtained a reaction for A, B, and O blood. On the unstained portion, I got no reaction.

Q: Okay. So, with respect to the reaction that you got, is that consistent with AB blood being on that jacket?

A: Yes.

Q: Did you use the absorption elution process to arrive at that result?

A: Yes.

Counsel: That's all I have.

If analyst 4 feels the test is as unreliable as he indicates in his cross-examination responses, should he not simply reject the test as unreliable and not do any ABO grouping of bloodstains? If he continues to use the test, should he in any case where type O blood is detected also indicate the possibity that the blood is actually type A, B, or AB? If the cabooses can so easily be uncoupled, could they not just as easily be coupled thereby transmuting a type O stain into a type A, B, or AB stain?

The theory proposed by analyst 4 has no support in the literature, nor in the experience of most criminalists. The general proposition appears to be that the physical world is unpredictable and subject to some type of appar-

ently random perturbations. The occasional results, according to this theory, are changes in the normal states of matter and rules of chemistry (eg., covalent bonds). This theory has recently been proposed by a lawyer (1) and two biochemists with little or no experience or understanding of forensic science (2,3). This theory is completely contradictory to what scientists hold to be true: That is, that the physical world is predictable, and the job of scientists is to discover the rules by which predictions can be made. If this were not the case, we should simply take off our lab coats and look for other jobs. The rules scientists use to make predictions must be applied evenly: How can a scientist use one rule (eg., that ABO antigens are stable, therefore their detection establishes the donor phenotype) in one case, and then, without any evidence to show that the rules should be changed, assert a new rule (eg., that A and B antigens can degrade to produce H reactivity in a dried stain) in another case?

The respondents to last issue's Ethical Delemma, which dealt with the failure to repeat an analysis of a PGM sub-type determination that had originally been performed in an experiment in which several of the determinations were found to have been in error, were unanimous in their feeling that the criminalist and supervisor had committed ethical violations. There were, surprisingly, no responses from supervisors - at least for attribution.

(1) Jonakait, Randolph N., "Will Blood Tell? Genetic Markers in Criminal Cases", EMORY LAW JOURNAL, 31:83-912 (1982)

(2) Juricek, Diane K., "The Misapplication of Genetic Typing in Forensic Science", JOURNAL OF FORENSIC SCIENCE, 29(1): 8-11 (1984)

(3) Grunbaum, Benjamin W., Brief of Amicus Curiae in Support of Defendant and Applellant, People of the State of California vs. Albert Greenwood Brown, Jr.

Response Sheet

June

If the criminalist feels the ABO typing of dried bloodstains is unreliable, to continue to perform the analysis is a violation of the CAC Code of Ethics?

Agree ( ) Disagree ( )

Section II.E of the CAC Code of Ethics requires that any inconclusive or indefinite conclusions be fully explained, and Section III.G describes the "moral obligation (of the criminalist) to see to it that the court understands the evidence as it exists". If the criminalist continues to perform the analysis, is he obligated to volunteer the possibility in each case that the type that is determined may be wrong due to transformation of A, B, and H antigens?

Agree ( ) Disagree ( )

The testimony given by the criminalist, if there is no substantiation for his claims and if given simply to offer a speculative reason for the difference between his data and that of analyst number 1, is unethical?

Agree ( ) Disagree ( )

Comments:

Return to:

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