California Association of Criminalists NEWSLETTER

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UPCOMING MEETINGS

THE USES OF FORENSIC SCIENCE
April 4-5, 1986
The Forensic Science Unit of the University of Strathclyde is sponsoring a conference on the uses of forensic science. There will be four concurrent sessions: Transfer traces, Crime scenes, Investigation science, and the Trial process. For further information, contact Mr. P. F. Nelson, Continuing Education Center, University of Strathclyde, McCance Building, Richmond Street, Glasgow G1 1XQ, UK.

NORTHWEST ASSOCIATION OF FORENSIC SCIENTISTS
April 29- May 2, 1986
The Spring NWAFS seminar will be held at the Inn of the Seventh Mountain, Bend, Oregon, Contact Mike Howard, Oregon State Police Crime Laboratory, 375 N.E. Franklin Street, Bend, OR 97701. 503-388-6150.

ASSOCIATION OF FIREARMS AND TOOLMARK EXAMINERS
April 28-May 2, 1986
The 16th AFTE Seminar will be held at the Holiday Inn-Inner Harbor, Baltimore, MD. The Seminar will feature a tour of the Aberdeen Proving Grounds. Contact Joe Reitz, Baltimore City Police Department, 601 Fayette Street, Baltimore, MD 21202.

CALIFORNIA ASSOCIATION OF CRIMINALISTS
May 14 - 17, 1986
The Spring, 1986, Seminar of the California Association of Criminalists will be held May 14 - 17, 1985, at the Hilton Hotel in Concord, California. The meeting is being hosted by the Contra Costa County Sheriff's Office Criminalistics Laboratory. Contact Kathryn Holmes, Contra Costa County Sheriff's Office, Criminalistics Laboratory, 1122 Escobar Street, Martinez CA, 94553, (415-372-2455)

COMBINED MEETINGS
May 28-31, 1986
A combined meeting of several regional forensic science associations will be held at the Radisson Hotel, Lexington KY. The meeting will be preceeded by a 17 hour workshop on laboratory safety conducted by the Occupational Safety and Health Administration on May 27-28. Contact Harold Alfultis, Loraine County Crime Lab, 10005 Abbe Road, Elyria OH 44035 (216-365-4191x364)

SOUTHERN ASSOCIATION OF FORENSIC SCIENTISTS
September 10-13, 1986
Auburn Conference Center, Auburn, Alabama. Contact Carlos Rabren, Alabama Department of Forensic Sciences, P. O. Box 231, Auburn, AL 36831. (205) 887-7001.

CANADIAN SOCIETY OF FORENSIC SCIENCE
September 15-19, 1986
The annual conference will be held at the Sheraton-Brock Hotel, Niagara Falls, Ontario. Contact Joanne Cottingham, Canadian Society of Forensic Science, 2660 Southvale Crescent, Suite 215, Ottowa, Ontario, Canada. 613-731-2096

NORTHWEST ASSOCIATION OF FORENSIC SCIENCE
October 8-10, 1986
The NWAFS Fall meeting will be held at the Red Lion Riverside, Boise, Idaho. Contact Pam Server, Forensic Section, Bureau of Laboratories, 2220 Old Penitentiary Road, Boise, ID 83712. (208) 334-2231.

MIDWESTERN ASSOCIATION OF FORENSIC SCIENTISTS
October 8-10, 1986
The 15th Anniversary meeting will be held in Springfield, Illinois. For further information, contact Ted Elzerman or John Klosterman, Illinois Department of State Police, Bureau of Forensic Sciences, 726 South College Street, Springfield, IL 62707. 217-782-4649.

CALIFORNIA ASSOCIATION OF CRIMINALISTS
October 8-11, 1986
Gene Autry Hotel, Palm Springs, California. For further information contact

Faye Springer, CA Department of Justice, P. O. Box 3679, Riverside CA 92519 (714)781-4170.

INTERNATIONAL ASSOCIATION OF FORENSIC TOXICOLOGISTS
July 1987
The 8th Triennial meeting will be held in Banff, Alberta, Canada. For further information, contact N. Dunnett, Home Office Forensic Science Laboratory, Aldermaston, Berkshire, RG7 4PN, UK.

INTERNATIONAL ASSOCIATION OF FORENSIC SCIENCES
August 2 - 7, 1987
Vancouver, British Columbia, Canada. Contact International Association of Forensic Sciences, 801-750 Jervis Street, Vancouver, B.C., Canada V6E 2A9. 604-681-5226.

SECTION and STUDY GROUP ACTIVITIES

The Study Group and Sectional Meetings are where the real work of the Association is accomplished: Exchange of information, help with problems, discussions of new techniques and current problems, reviews of new and existing methods, etc. All members are encouraged to participate in any study groups in which they have an interest, and to regularly attend regional section meetings. The individuals to contact regarding regional and study group activities are listed here along with recent and anticipated meetings. Study group moderators are encouraged to submit summaries of their group's activites for each newsletter.

NORTHERN SECTION

Eston Schwecke — Huntington Beach Police Dept. 2000 Main Street Huntington Beach CA 92468 (714)536-5682

Northern Section Biology Study Group

Gary Sims — Inst of For. Science 2945 Webster St Oakland CA 94609 (415)451-0767

Northern Section Firearms Study Group

Grady Goldman — Contra Costa Co Sher. 1122 Escobar St Martinez CA 94553 (415) 372-2962

Richard Schorr — Contra Costa Co Sher. 1122 Escobar St Martinez CA 94553 (415) 372-2455

Northern Section Trace Evidence Study Group

Marty Blake — Oakland P.D. 455 7Th St- Rm 608 Oakland CA 94607 (415) 273-3386

Stephen Shaffer — Inst. of Forensic Sci 2945 Webster St Oakland CA 94609 (415) 451-0767

Theresa Spear — Alameda Co Sheriff 15001 Foothill Blvd San Leandro CA 94578 (415) 577-1705

Northern Section Drug Study Group

Lance Gima
Ken Fuji — CA DOJ-San Rafael Hall of Justice Civic Center San Rafael CA (415) 472-4425

SOUTHERN SECTION

Eston Schwecke
Regional Director

Huntington Beach
Police Dept.
2000 Main Street
Huntington Beach CA
92468
(714) 536-5682

Southern Section Biology Study Group

Barbara Johnson

Los Angeles Co
Sheriff
2020 W Beverly Blvd
Los Angeles CA 90057
(213) 974-4611

Margaret Kuo

Orange Co Sheriff-
Coroner
P.O. Box 449
Santa Ana CA 92702
(714) 834-3073

Carol Rhodes

Cal Lab of Forensic
Science
17842 Irvine Blvd
Suite 224
Tustin CA 92680
(714) 669-9461

David Sugiyama

Forensic Science
Services
2501 Cherry Suite 370
Signal Hill CA 92702
(213) 424-2220

Southern Section Firearms Study Group

<<This study group is currently inactive>>

Southern Section
Trace Evidence Study Group

James Bailey

L. A. Co. Sheriff
2020 W Beverly Blvd
Los Angeles CA 90057
(213) 974-4611

Harley M. Sagara

L. A. Co. Sheriff
2020 W Bevrley Blvd
Los Angeles CA 90057
(213) 974-4611

During 1985, this study group has visited major manufacturers of athletic shoes, paint, ink, and petroleum products. Two discussion meetings focussed on the importance of trace evidence, the FBI hair symposium, and methods of soil analysis. In addition, a class in basic microscopy taught by Walter McCrone and Associates was sponsored by the study group and hosted by the Huntington Beach Police Department and the Orange County Sheriff's Department. The two study groups from the north and the south met for a joint meeting in Yosemite during Spetember and again at the CAC semi-annual seminar in October.

Southern Section Drug Study Group

Darrell Clardy

Anal & For Tox
P.O. Box 5295
Fullerton CA 92635
(714) 879-4065

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ANNOUNCEMENTS

COURSES AND SYMPOSIA OF INTEREST

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PHOTOGRAPHING FORENSIC EVIDENCE

The Rochester Institute of Technology's Technical and Education Center of the graphic Arts is sponsoring a course in forensic evidence photography. This course is designed for forensic evidence photographers as well as investigators from arson units. insurance agencies, and security agencies. The course will be offered twice: October 6-9, 1986, and April 27-30, 1987. The fee for the seminar is $565.00. The instructor is Luther Dey. For further information, contact Jim Lawrence, T & E Center Seminar Coordinator, One Lomb Memorial Drive, P.O. Box 9887, Rochester, NY 14623. (716) 475-2317.

ATF ARSON ACCELERANT DETECTION COURSE

The Bureau of Alcohol, tobacco and Firearms will conduct two Accelerant Detection Courses this year: June 9-13 and July 14-18. These courses will be taught at ATF's National Laboratory Center in Rockville, maryland. The course is designed for state and local chemists who perform, or will be performing, laboratory arson analysis. For additional information and application forms, contact Richard Tontarski, ATF-NLC, 1401 Research Blvd., Rockville, MD 20850. (202) 294-0420.

SYMPOSIUM ON FORENSIC CHEMISTRY

The Annual Federation of Analytical Chemistry and Spectroscopy Societies Meeting will sponsor a symposium on forensic chemistry. Special consideration will be given to a papers dealing with the applications of infrared and atomic spectroscopies. The meeting will be held at the Cervantes Convention Center in St. Louis, Missouri from September 28-October 3, 1986. For further information contact Robert Koons, FSRTC, FBI Academy, Quantico, VA 22135. (703) 640-6131.

ELISA COURSE

The University of New Haven Forensic Science Program in cooperation with the Northeastern Association of Forensic Scientists will run an ELISA (Enzyme Linked Immunosorbent Assay) one week short course/workshop in West Haven, Connecticut the week of May 12-17, 1986. This short course will focus on serological applications of ELISA including basic procedures, applications to blood and body fluid identification, applications in blood grouping, applications with monoclonal antibodies and automation of ELISA procedures.

Principal instructor: Dr. S. M. Fletcher, Home Office Central Research Establishment. Other instructors include Dr. R. E. Gaensslen and Dr. H. C. Lee. The fee for the course is $350.00. Enrollment is limited.

For additional information contact UNH-NEAFS ELISA Course, c/o T.A.K.A., P.O. Box 208, Greenlawn, NY 11740.

INTERNATIONAL SYMPOSIUM ON DIGITAL IMAGE PROCESSING FOR FORENSIC APPLICATIONS

The symposium will be held at the FBI Academy in Quantico, Virginia, June 15-20, 1986. The subject will be techniques and methodology in examining forensic images. For further information contact SA Michael G. Noblett, Laboratory Division, J. Edgar Hoover FBI Building, 10th and Pennsylvania Avenue, N.W., Washington, D.C. 202-324-4427.

INTERNATIONAL SYMPOSIUM ON FORENSIC IMMUNOLOGY

The FBI will host an international symposium on forensic immunology at the

FBI Academy in Quantico, Virginia, from June 23-26, 1986. Plenary sessions will be devoted to lectures by prominent scientists on such topics as the immune response, antibody-antigen interactions, immunofixation methods, monoclonal antibodies, ELISA, individualization and quality assurance. Afternoon sessions will be devoted to poster sessions and/or discussions of pertinent research, training, scientific data and testimony topics.

For further information contact SA Kenneth W. Nimmich, Symposium Coordinator, FSRTC, FBI Academy, Quantico, VA 22135. 703-640-6131x3307.

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REPORT AVAILABLE

The 1985 Annual report of the FBI Forensic Science Research and Training Center(FSRTC) is now available. This report contains a detailed description of the activities of FSRTC staff in the following areas: Forensic Science Research Group, Forensic Science Training Unit, FSRTC Programs/Associations, Seminar Hosted by FSRTC, Symposia and Technical Conferences Hosted by the FSRTC, Training Presentations by Staff, Presentations at Conferences, Meetings and Symposia by Staff, Training Received by Staff, Professional Conferences and Meetings Attended by Staff, and Positions Held in Professional Organizations by Staff. Anyone who would like a copy of this 67 page document can contact SA Jim Kearny, FBI Academy, Quantico VA 22135.

JOURNAL DONATIONS NEEDED

The Department of Criminal Justice at the University of Illinois at Chicago is seeking donations of the following professional journal issues. Such donations are tax deductible:

Journal of Forensic Sciences:
Vol. 3(1), Jan. 1978
Vol. 13(1), Jan. 1968

J. of the Forensic Science Society:
Vols. 1 through 20

Forensic Science
Forensic Science International:
Any issues

Medicine, Science and The law:
Any issues

Journal of Criminal Law, Criminology and Police Science:
Any issues

Please write or call:
Dr. David A. Stoney
Dept. Criminal Justice
Box 4348
University of Illinois
Chicago, IL 60680
(312) 996-7221

CORRECTION

In the January newsletter it was erroneously stated that Laurie DeHaan, the recipient of the CAC's Paul L. Kirk Award, was a graduate of Sacramento State College. In fact, she is a graduate of the University of California at Davis. The editor apologizes for the error and any embarrassment it has caused.

SUBSCRIPTION DISCOUNT OFFERED

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Elsevier, the publisher of Forensic Science International, have offered a reduced subscrioption rate for personal subscriptions for CAC members. The annual subscription rate being offered is $80.00. Members who wish to take advantage of this offer should fill out the enclosed subscription request and forward it, along with their check for $80.00 to CAC Treasurer Dan Gregonis. You will automatically be billed for a renewal subscription with each future dues renewal.

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JOB OPENINGS

(Job openings are obtained from a variety of sources. Given publication deadlines and delay in receiving announcements from other parts of the country, some of the openings announced here may be filled by the time this Newsletter is received. Job announcements will normally be run only one time. Members actively seeking employment are encouraged to contact the editorial secretary for information about openings which become available between newsletters.)

CRIMINALIST
Sheriff's Criminalists needed in San Bernardino County $2208-$3268 monthly depending on experience. Gathers, preserves, examines and reports on evidence. Requires B.S. or equivalent in criminalistics, chemistry, biochemistry or related field. Must pass rigorous physical, background investigation and be citizens; will become sworn personnel. Phone or write Dolores Hershman (714)383-3598, San Bernardino County Personnel, 157 W. 5th Street, San Bernardino, CA 92415-0440. EOE/AA m/f/h.

SEROLOGIST
The Ventura County Sheriff's Crime Laboratory has an opening for a serologist. Experience is preferred, but not required. Salary, depending on experience, is $1948-2948/month. Contact A. Bergh, Director, Ventura County Sheriff's Crime Laboratory, 800 S. Victoria Avenue, Ventura CA 93009. (805) 654-2332.

FORENSIC CHEMIST
The Johnson County, Kansas, crime laboratory located in the metropolitan Kansas City area has an opening for an experienced forensic chemist. Salary is $28,766-$38,916. Contact Deputy Lee barnum, Supervisor, Johnson County Criminalistics Laboratory, 6000 Lamar, Mission, KS 66201. 913-384-1100x620.

JOB WANTED

A Criminalistics position is wanted by a May graduate (B.S.- Criminalistics, A.B.-Chemistry) of Metropolitan State College, Denver, Colorado. Contact
Steven M. Bennett
2730 Lowell Blvd.
Denver CO 80211

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Be sure to see the 1985 CAC Salary survey that is included with this newsletter.
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AAFS AWARD TO GEORGE SENSABAUGH

The following citation in support of the recommendation of George Sensabaugh for the Criminalistics Section Distinguished Service Award was presented to the Criminalistics Section of the American Academy of Forensic Science at its 1986 meeting in New Orleans.

Criminalistics Section
Distinguished Service Award

George F. Sensabaugh

"In the seventeen years since he received his doctorate from UC Berkeley, Dr. Sensabaugh has engaged in a career as a researcher and academician through which he has made many outstanding contributions to the profession of criminalistics.

"After completing post doctoral work at the University of California, San Diego, and at the Genetics Division of the National Institute for Medical Research, Mill Hill, in London, he became an Assistant Professor of Forensic Science at UC Berkeley in 1972, rising to Associate Professor in 1979. He has also been a Visiting Professor of Forensic Science at the University of Strathclyde in Glasgow, Scotland for the past two years.

"Throughout his tenure at Berkeley, he has helped to foster the long tradition of criminalists education begun at that institution by Dr. Paul Kirk. Many of his former students now work as criminalists across the country or have joined forensic science faculties at other academic institutions. He has continued as well in Berkeley's tradition of basic research. To date, he has 42 publications in the fields of biochemical genetics and forensic science and has made or co-authored 119 presentations to scientific meetings.

"Dr. Sensabaugh's research on the modification of proteins in dried stains, the biochemical genetics of erythrocyte acid phosphatase, sperm diaphorase, and esterase-D, and the biochemistry of prostatic acid phosphatase have fundamentally advanced the practice of forensic serology. The semen specific protein P-30 isolated in his laboratory has become the basis for an important new technique for identifying minute amounts of semen. Work in which he collaborated on the biochemical genetics of semen has fundamentally advanced the analysis of sexual assault evidence in this country. Because of his international reputation in the field of bloodstain biochemistry, he has twice been named Chairman of the bloodstains program of the International Association of Forensic Sciences.

"In addition to being a talented researcher and dedicated teacher, Dr. Sensabaugh has made a number of important contributions to the profession of forensic science and to the Academy which deserve special mention. Thirty-seven of his technical presentations have been to the California Association of Criminalists and seventeen to the American Academy of Forensic Sciences.

"Although he himself does not analyze case evidence, Dr. Sensabaugh has recently been called upon to provide key testimony in several states concerning the value and reliability of genetic typing of biological evidence. His role in educating the courts as to the scientific foundation of genetic typing of biological evidence constitutes an outstanding service to the public and to our profession.

"Dr. Sensabaugh is member of the following scientific and professional organizations: American Association for the Advancement of Science, Sigma XI, American Society for Human Genetics, American Chemical Society, California Association of Crime Laboratory Directors, New York Academy of Sciences, Society for Forensic Haematogenetics, and the Electrophoresis Society.

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Sensabaugh (con't)

"He currently serves on the editorial boards of three forensic science Journal, including the Journal of Forensic Sciences and was a member of the California Association of Criminalists Board of Directors for six years, serving as Editorial Secretary and Newsletter Editor from 1977 to 1983. He chaired the California Association of Criminalists Peer Group in Serology for two years (1978-79), serving also as a member of the National Serology Peer Group of the Criminalistics Certification Study Committee. In 1983, for these and many other contributions, Dr. Sensabaugh became the first recipient of the Distinguished Member Award of the CAC.

"Because of his distinguished career as a researcher and educator and because of his many years of service to the profession of criminalistics, Dr. Sensabaugh richly deserves to receive the 1987 Criminalistics Section Distinguished Service Award.

"Respectfully submitted,

"Awards Committee, 1985-86
American Academy of Forensic Sciences,
Criminalistics Section

"Jan Bashinski, Chair
Richard Frank
Donald Flynt
Barry Fisher"

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BREATH ALCOHOL TESTS - COURTROOM ATTACKS

The following memorandum was written by California Deputy Attorney General Charles R.B. Kirk. In this memorandum DAG Kirk discusses the implication of the case of People v. Pritchard (1984) 162 CAl App.3d Supp. 13. The memorandum is reprinted here with permission from the California Department of Justice for the edification of our members.

October 23, 1985

To: Alfred A. Biasotti, Investigation & Enforcement Branch, Sacramento

From: Charles R. B. Kirk, Deputy Attorney General, San Francisco

Subject: Precluding Defense Attacks Upon Breath-Alcohol Tests Where Attack Inapplicable to Defendant

It is common -- and encouraged in texts such as "Defense of Drunk Driving Cases" -- to have defense attorneys in DWI cases attack the accuracy of breath-alcohol tests based upon "possibilities" which are in fact totally inapplicable to their defendant. A typical example is the partition ratio: a defense "expert" (or a criminalist on cross-examination) being asked if it is not true that 5% of the population falls outside of that ratio, and therefore a BAC result (particularly in borderline cases, such as .10) could be erroneous. Should such a question be asked on either direct or cross-examination of an expert witness, the prosecutor should object to the question as lacking foundation, and the answer therefore being irrelevant.

In People v. Pritchard (1984) 162 CAl App.3d Supp. 13, the Appellate Department of the Los Angeles County Superior Court specifically held that defense evidence of possible partition ratio error was insufficient to undermine a DUI conviction. Although a decision of an appellate department of a superior court is binding precedent only within that county, nevertheless such a published opinion is persuasive authority and should be used by prosecutors elsewhere to block such testimony before it is given to a jury.

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Breath alcohol testing (con't)

In Pritchard (pp. 16-17), the Appellate Department said: "In order to deal with the situation where an exonerating fact is peculiarly within the defendant's knowledge, and proof of its nonexistence by the prosecution would be relatively difficult or inconvenient, the courts have established 'the rule of convenience whereby the initial burden of producing evidence on the issue is placed on the defendant. (Citations.)

"We hold the circumstances herein call for application of the rule of convenience. It was apellant's obligation to present evidence that his partition ratio deviated from the norm".

"Further, application of the rule of convenience to the partition ratio comports with this legislative scheme to facilitate the prosecution of drunk drivers. Application of the rule in this situation is not unduly burdensome to the defendant as he has the option of electing to eliminate this potential problem by taking the blood test, when it is offered pursuant to Vehicle Code section 13353.

"We hold that the rule of convenience applies as to the partition ratio, and by its operation the defendant is, in effect, presumed to have a 2100 to 1 partition ratio unless he presents evidence as to his personal partition ratio which establishes that the 2100 to 1 ratio is not valid for him. General evidence of such a possibility of error in the partition ratio will not suffice to rebut this presumption."

Although Pritchard is not binding precedent in counties other than Los Angeles, the decision nevertheless cites the general legal principle of the "rule of convenience" (p.16) and cites two California Supreme Court cases and one Court of Appeal case which apply that principle and are, therefore, operative as precedent anywhere in the state. In addition to these, cases may be cited In re Andre R. (1984) 158 Cal.App.3d 336, 342, where the court applied the rule of convenience to uphold a juvenile "conviction" for possession of a concealable firearm by a minor without written parental permission; the court noting that the exonerating evidence could be produced only by the minor or his parents, and they had not done so. For those seeking more recent authority, they will find cases cataloged in McKinney's Digest, Criminal Law Section 282, or in West's California Digest, Criminal Law Key 330.

The "rule of convenience" is applicable to a substantial number of the types of attacks made upon breath-alcohol instruments, and particularly the Intoxilyzer. Just as Pritchard suggests that deviation from the standard partition ratio is inapplicable without proof that the defendant himself falls beyond the norm, so too are questions designed to cast doubt for want of specificity in the absence of proof that the defendant ingested some sort of hydrocarbon or was suffering as a fasting diabetic. In each of these instances, the defendant is in the unique position of presenting evidence that: (1) his partition ratio differs from 2100 to 1, as demonstrable through personal blood-breath correlation studies; or (2) he was suffering from diabetes and was fasting, as could be shown through medical evidence and his own testimony; or (3) he worked in a paint factory with a high level of hydrocarbons in the ambient atmosphere, coupled with scientific evidence showing that inhaled hydrocarbons would have been present in his system at the time of arrest.

A fundamental error was committed by the prosecutor in Pritchard by not objecting to the question for lack of foundation and to any answer for want of relevance. Evidence Code section 350 provides that only relevant evidence is admissible. How was the evidence concerning partition-ratio deviation relevant in Prit

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Alcohol tests (con't)

chard when there was no evidence that the defendant himself was a member of that small group of people falling outside the norm? Before such a question can be asked of an expert, there must first be proof of the preliminary fact that the defendant falls outside the norm. Evidence Code Section 403 provides that:

"(a) The proponent of the proffered evidence (Example: how deviation from the partition ratio can render test results erroneous) has the burden of producing evidence as to the existence of the preliminary fact (EXAMPLE: the defendant falls outside the norm), and the proffered fact is inadmissible (EXAMPLE: the question cannot be asked or answered over objection) unless the court finds that there is evidence sufficient to sustain a finding of the existence of the preliminary fact (EXAMPLE: the exception applies to defendant), when:

(1) The relevance of the proffered evidence depends upon the existence of the preliminary fact..."

By simply adapting the bracketed examples to the various types of questions typically asked by defense counsel to cat doubt upon the accuracy of test results, you will see that virtually none of the typical questions should be asked or answered, and that objections to such questions should be sustained.

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California Association of Crime Lab Directors
Meeting, November 14 & 15, 1985

Summarized by
Eston Schwecke
Southern Section Director

Developing Strategies for the Crime Lab (Barry Fisher, LASO)

We are employed by a non-scientific community that is composed of different groups who see us in different lights (Court, District Attorney's, Public Defenders, Jurors, Officers, Administrators). The public sees us as modern day "Quincy" or "Sherlock Holmes".

The Use of buzz words and "weasle" words can be confusing. For example, multi-syllable words and phrases like "consistent with".

We must meet the needs of those who need our service. In the area of personnel, volunteers can be used. Many volunteers become full-time forensic scientists.

Be visible, blow your own horn and insist on professionalism in all aspects of laboratory work.

Develop an attitude of cooperation with all users of your service. Develop contacts with other agencies. Set high goals, reward achievement and have an attitude of enthusiasm.

Title 22 - State Medical Protocol - Update (Jan Bashinski, OPD)

The draft is prepared and close to the final stages. The work is going on through the Office of Criminal Justice Planning (OCJP). Title 22 is to cover all hospitals, public and private. It is currently being field tested in 9 hospitals. There is an information guide that provides background material for the protocol. The protocol will be "recommended methods" for meeting the statutory standards. We are essentially having our way with collection and preservation of this evidence. There is a hope that this may evolve into uniform

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CACLD meeting (con't)

rape kit with uniform training by video tape.

Serology Technical Guidelines
(Steve Helsley, BFS)

"Technical Guideline 85-1 Serology" was presented to the group.

Other plans of BFS were opened by Helsley, one of which was the possibility of a "felony" toxicology program (non-driver). This program would involve advanced instrumentation acquisition by the bureau.

Attack Drunk Driving - Campaign in San Bernardino County
(Sgt. Forrest Billington, SBSD)

San Bernardino County is third in the state (tied with Orange County for the highest number of fatal accidents.

The ADD campaign was to bring drunk driving to the attention of the public with the use of sobriety check points.

The check points were fashioned after attorney general guidelines. They were selected by the number of DUI related incidents in the area.

They used a PBT (preliminary breath testing) technique with the "Sober Meter" of Lucky Labs as one of their FST's. The PBT did not represent a problem with 13352 because it was not a breath test but only a FST.

California Criminalistics Institute
(Steve Helsley - BFS)

Proposal for fiscal year 86-87 which would include space and positions. This "FBI West" would be a place for training and advanced casework.

Legislative Update
(Frank Fitzpatrick, OCSO and
Ken Mack, SDA)

Senate Bill 288 - Spores of hallucinogenic mushrooms to be illegal.

11372.5 H&S and 4230 B&P to legislatively to be added for laboratory drug conviction money.

P.C. 10.16 - diversions to pay $50.00 - assessment to crime lab.

Trying to get the following to apply:

25189 VC for hauling hazardous materials $50,000/day/count.

Career Compaction
(Rob Stoinoff, SAPD)

Personnel departments often made it difficult to advance from one criminalist level to another. Flexible staffing is a possibility. For example, budget position as Criminalist II and fill as Criminalist I. Some systems may then have problems advancing the employees. Considerations could be made for a minimum or maximum time for advance to Criminalist II, or possibly automatic advance.

New Laboratories
(Larry Ragle, OCSO)

Most labs are overcrowded and have a need for additional space. Build large for the future and possibly lease out extra space. Labs were visited in Toronto, Maryland and FBI. It may be advantageous to budget for trips to other labs in the country prior to designing and building.

CAL ID Update - (Renfro BFS)

Senate bill 190 is appropriating money for project. 90,000 cases can be run with 40,000 of those available for regional cases.

Case Prioritization & Timekeeping
(Steve Helsley BFS)

Crimes against people are the most im-

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CACLD meeting (con't)

portant. DA's complain about turn around time. Is something that is not necessary but just sitting part of the backlog? Check with requestor to see if case is still worth doing. If decisions are made not to file or won't go to court - how do we know? 60% of all drug cases fall through the cracks at some point.

Establishing priorities for criminalistics cases utilizes the following three dimensional system: (1) client needs, (2) processing order and (3) case type. Degrading evidence and in custody cases are not part of this organization.

ASCLD Ethics Committee Progress Report
(John Murdock, OCSO)

Input is requested to begin formulation of ethics plank by ASCLD. The statements of ethics for supervisors and managers will be for themselves and management of their employees. Most input so far has indicated that is should be detailed enough to cover most situations. But there are some who feel it should be shorter and more general. Most people responding to a survey indicated that they did not want any formal enforcement procedure.

Prioritizating Work on Individual Cases
(John Murdock, CCSO) Group Discussion

Priorities change and there is a need for broad case evaluation. Older cases should have increased priority, in some instances even over newer higher pay off cases. On low pay off cases advice on capabilities and te potential of the evidence should be stated. As a manager, if you are told to do politically sensitive analysis - it is done. Communication to the worker should explain the priority involved.

Get to your bosses before other people do and give him alternatives. Be in a position to tell of impact on other cases.

Alternative Work Scheduling
(Margaret Kuo, OCSO)
Group Discussion

With tight space, shift schedules became necessary. Volunteers were asked for but few came forward. Therefore, mandatory measures became necessary. Shifts were varied from 0530 hours to 2100 hours.

Some effects will surface when extra over-time is seen. There are slso short and long range morale problems to be faced.

An additional report will be forthcoming when the program has been instituted long enough to see any reactions.

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STATISTICS COURSE SPONSORED BY CAC

A short course in applications of statistics to forensic problems will be present by Dr. Maria Koretz on Wednesday, May 14. The course will be taught the day before the May seminar at the Concord Hilton - the same location as the seminar. The cost for this course will be approximately $40.00 for CAC members and $75.00 for non-members. Several of our members have taken courses from Dr. Koretz through UC and report very favorably on them. The CAC is underwriting a portion of the cost for the course. Plan to come to the seminar a day early and take advantage of an opportunity to take a valuable course.

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BLOOD ALCOHOL ANALYSIS

Response to Criticism

Kathryn Holmes
Chairman
CAC-Public Health Liaison Committee
and
Criminalist
Contra Costa County Sheriff's Office
729 Castro Street
Martinez CA 94553

A recent article in Analytical Chemistry[1] misrepresented the current state of the art of blood alcohol analysis: First, because the article gave a scientifically biased approach to the subject from the viewpoint of an attorney interested in securing acquittals for his clients, and second, because Analytical Chemistry saw fit to lend credence to this viewpoint by the use of an illustration of a blind Justice drawing blood alcohol levels at random from a bowl.

I have prepared this response to this article at the request of the California Association of Criminalists. Regardless of their affiliation, the testimony given by members of this organization indicates that there is considerable scientific consensus on the current state of the art and the reliability of tests for alcohol, and this consensus is quite different from the opinions expressed in your July article.

While I am certain that, as the authors contend, there are some over zealous forensic scientists working for law enforcement who color their testimony to help the prosecution, the overwhelming majority of forensic scientists are conscientious individuals concerned about professional ethics and cautious about giving inappropriate weight to testimony in court. They are called by the prosecution to give testimony because the current scientific evidence in the area of alcohol testing is helpful to the prosecution and not because of some desire to help win convictions. The problem of over zealous experts, and its remedy, is a legal, not a scientific one. The courts have provided ample opportunity for the defense to refute the contentions of the prosecution. The article would have been far more appropriate in a journal for defense attorneys.

Hume and Fitzgerald took exception to the failure of the scientist appearing for the prosecution to demonstrate the effects of alcohol on a particular individual. There are an overwhelming number of published epidemiological, driving, and simulated driving studies involving many thousands of subjects which support the fact that all drivers, whether heavy or occasional drinkers, race car drivers or unskilled drivers, are impaired for the purpose of driving a motor vehicle by the time they reach a blood alcohol level of 0.10% despite individual responses to the effects of alcohol. Groups such as the National Safety Council and the American Medical Association have issued statements that all persons are impaired by the time they are 0.10% BAC. In fact, many people are impaired well before they reach the 0.10% level.

Impairment is not a state which mysteriously appears at a particular level of intoxication, but is a gradual phenomenon which begins the moment an individual's blood alcohol level departs from 0.00%. Alcohol never improves a person's driving performance. There is

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always a degradation in skills. The 0.10% level is merely that level at which we can clearly demonstrate, given our current test methods, a significant degradation of all individuals and that level at which the risk of an accident is sufficiently increased such that it is unacceptable. Many other countries have set that level of unacceptable performance far lower, and have set blood alcohol limits of 0.08%, 0.05% or even 0.03%!

In any trial for driving under the influence of alcohol, the prosecution must establish that the individual was impaired for the purposes of driving. The typical legal definition of driving under the influence does not require that the individual be "drunk" or unable to drive the vehicle, but rather includes some language about the individual being unable to drive in a safe and prudent manner. In fact, many people may appear "normal" to casual observers, but may still be sufficiently impaired by alcohol to pose a danger on the highways. Thus, the presence of slurred speech, staggered gait, or blurred vision in an individual may corroborate the allegation of alcohol impairment, but its absence does not necessarily mean the individual is not impaired. The forensic expert giving testimony at trial may indeed refer to symptoms of alcohol impairment and the approximate levels at which such symptoms are found. However such testimony is usually presented not as evidence of the driver's particular alcohol level but as an explanation of the symptoms observed by the police officer which led him to the arrest. The critical testimony regarding impairment is that all persons are impaired above a 0.10%. Hence, it is not necessary to know the specific symptoms or drinking tolerance exhibited by an individual as the result of alcohol. On the other hand, there is no evidence to support the contention that a particular individual is not impaired at a 0.10% BAC.

Most experts in the field share the opinion that all persons are impaired at a .10% BAC, and as experts, they are entitled to express this opinion in court. Likewise, if the defense chooses to disagree with this opinion, it is entitled to call its own expert to give testimony to the contrary. There are a limited number of "experts" willing to give this opinion despite evidence to the contrary.

Another area which Hume and Fitzgerald address inadequately deals with the extrapolation to a previous blood alcohol level based on a later test. They imply that this is not possible. If a sufficient amount of time has passed, it is indeed not possible. In those instances, the prosecution must rely on the observations of the officer to corroborate the blood alcohol level. Forensic scientists are quite reluctant to offer an opinion in this area unless it is qualified by a number of assumptions which are expressed in court regarding the circumstances surrounding the drinking and blood alcohol test.

Unfortunately, many of the studies currently cited in the literature involve experiments in which test subjects drank large quantities of alcohol on empty stomachs during fairly short periods of time. These represent the worst case situations in which absorption and the increase in blood alcohol concentration are most rapid and large changes in the blood alcohol level may occur in short periods of time. This is analogous to an individual "chugging" a large amount of liquor and climbing into a vehicle after only fifteen minutes. This is not the typical situation in cases of driving under the influence. If, however, this is the contention, the expert will freely admit that the blood alcohol level at a prior time could be much lower than at the time of sampling.

There are many situations, however, when it is quite possible for the expert to offer an opinion about the range of

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possible blood alcohol levels at a previous time. Such a range would consider the variation in absorption and elimination rates which are found in various individuals. This range is not so great as Hume and Fitzgerald would have us believe. They have emphasized the fact that complete absorption of alcohol may take several hours, implying that a person will reach his maximum blood alcohol level some time after complete absorption of the alcohol. Such is not the case, even when absorption is delayed by the ingestion of food. The maximum blood alcohol level is usually reached before absorption is complete.

The initial rise (to within approximately 0.02% of the maximum level) in blood alcohol concentration is fairly rapid, usually occurring in the first 30 to 45 minutes regardless of stomach contents.[2,3,4] This is usually followed by a slower rate of absorption to the maximum blood alcohol level. Thus there may be large changes in blood alcohol concentration initially, but the increase in concentration is much less as the maximum alcohol level is approached. In cases where the complete absorption of the alcohol takes several hours, the maximum blood alcohol level may be reached well before absorption is complete. Thus the relevant subject which must be addressed in a trial is not the amount of time required to achieve complete absorption, but the amount of time required to reach the maximum blood alcohol level. They are not the same. The effect of prolonging the absorption of alcohol is usually to minimize the change in the blood alcohol concentration with time around the time of the maximum blood alcohol level. Thus a person who drinks on a full stomach is more likely to be the same level at the time of driving as at the time of the test.

A person who spaces his drinks over a period of time, as is typical in social situations where one drink is consumed every 30 to 45 minutes, will also exhibit slow changes in blood alcohol concentration. Thus, the expert can testify that, assuming the blood alcohol test occurred within one to two hours of driving and the drinking behavior was social, the blood alcohol level at the time of driving was slightly higher, the same, or slightly lower than the blood alcohol at the time of the test. The defendant is free to challenge these assumptions with testimony that he ingested large amounts of alcohol just before driving, or by providing a different hypothetical situation to the expert. Unfortunately for the defendant, this may not agree with statements made to officers at the time of arrest.

Because the average blood alcohol level of those arrested for driving under the influence is approximately 0.17% to 0.19%, the range of uncertainty regarding a blood alcohol level at a previous time is usually still well above the 0.10% level. In those rarer instances where the blood alcohol level is determined to be nearer to .10%, then the prosecution must rely on the police officer or other witnesses to support the charge rather than the expert witness. In many jurisdictions, the District Attorney's office may not charge cases where the blood alcohol level is less than 0.12% to 0.14% unless corroborating evidence is especially strong. This is not a failing on the part of the forensic scientist or the technique but is a result of the inherent limitations which occur in all areas of forensic science: it is not possible to know all of the relevant circumstances. That is why the jury is charged with the responsibility of deciding how much weight, if any, to give to any type of testimony. Indeed, it was not that many years ago that cases of driving under the influence of alcohol were decided solely on the evidence of the arresting officer with no corroborating blood alcohol level.

My own experience with trials for driving under the influence of alcohol

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is that convictions are not the result of an expert testifying about the defendant's blood alcohol level at a previous time, but because of the testimony of the defendant. Frequently he offers a scenario such as this: he only had two drinks (although it would take at least six drinks to get him to the level indicated by the blood alcohol test) within fifteen minutes before he left a bar, he was weaving in the car because he was trying to retrieve his cigarettes from the floor, and he performed the officer's sobriety tests poorly because he has a bad knee. The number of extenuating or unusual circumstances and the obvious deception usually lead the jury to doubt the defendant's testimony.

Hume and Fitzgerald spend considerable time discussing the variability of the Widmark factor. I am uncertain as to why this is brought into the article other than to help give the impression that the area of alcohol testing is fraught with uncertainties. An individual's Widmark factor is irrelevant to his or her blood alcohol level. It serves as a useful convention for explaining why different people reach different blood alcohol levels on similar quantities of drinks. It can serve as a general guideline in determining how many drinks are required for an individual to reach a particular blood alcohol level. But it is not used in the testing of blood alcohol levels.

The courts are not interested in how many drinks were required to bring a person to a given blood alcohol level. A blood alcohol level of .10% is still unacceptable whether it required two drinks or ten drinks. Appeals by defendants who have been convicted of having a blood alcohol level in excess of .10% and who contend that the law is unconstitutionally vague because they could not have known their blood alcohol level have been denied. Each of us has been charged with the duty of restricting our drinking when we are driving.

Perhaps the most egregious misrepresentation in the Hume and Fitzgerald article dealt with breath testing. The article mentions breath to blood conversion factors which cover a range of 1142:1 to 3478:1, but no where is it stated that studies showing low conversion ratios were done many years ago by techniques that have since been replaced by more accurate ones and that the results of these studies could not be duplicated or have otherwise been discounted.[5, 6, 7] Many recent studies exist using the same equipment that is presently in use by law enforcement.[8, 9, 10, 11, 12, 13] These studies indicate that the 2100:1 conversion factor used by breath instruments is somewhat low approximately 80% of the time. A person who takes a breath test will get a result which is equal to or lower than his blood alcohol level most of the time. Approximately 5 to 10% of the time, the breath test will be higher than the corresponding blood alcohol level, but not more than 10% of the blood alcohol level higher!

Occasionally articles in the literature are still encountered in which the claim is made that the conversion factor is some ridiculous number. These studies have been flawed for a number of reasons, some of which are: conversions ratios have been calculated from extremely low breath alcohol levels (.03%) where small differences between the breath and blood levels cause large apparent changes in the conversion ratios; the techniques used do not relate to the techniques presently in use; subjects have been tested before the alcohol has dissipated from the mouth giving readings indicative of mouth alcohol rather than lung alcohol.

Several years ago a section was added to the California Vehicle Code which required police officers to offer a free blood or urine test to drivers who had taken a breath test and who wished to have their own sample to refute the breath test results. The data

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from thousands of these cases across the state have been collected and will soon be published. There is not a single case in which a breath test exceeds the blood level by more than 10% of the value. These results from actual field conditions incorporate those variables mentioned in Hume and Fitzgerald's article as causing erroneous results. Despite these variables, the agreement is quite good.

A number of results were found among the data in which the breath test was significantly below the corresponding blood test. This is also found in laboratory test situations and is caused by the test subject giving an inadequate sample. The limitation of the breath test is that it does require the cooperation of the subject. However, failure to cooperate gives an erroneously low result and will not cause an unwarranted prosecution of an innocent driver.

Hume and Fitzgerald also claim that breath alcohol testing is easily affected by contamination. As with any scientific technique, the testing procedure is as important as the equipment itself. Thus the procedure incorporates a 15 minute waiting period during which time the subject must be watched to ensure nothing is placed in the mouth. This is more than ample time for anything in the mouth to dissipate, including the alcohol in dentures! The only way sniffing alcohol will cause an instrument to register offscale is if the subject inhales directly from the bottle of alcohol and exhales directly into the instrument. Within a very few minutes, the reading will drop to normal. It is ludicrous to think that a test subject could inhale alcohol from a container within a few minutes of the breath test without being detected by the officer.

Regurgitating alcohol into the mouth can result in an erroneously high reading. As a result, California and many other states require two breath samples to constitute a valid breath test. Alcohol dissipates so rapidly from the mouth that it is not possible to obtain two consecutive readings which are within 0.02% BAC of one another. I do believe that areas which use only one breath sample would have difficulty supporting their results. Our experience in California has been that a single breath test, when in error, is almost always lower than the corresponding blood alcohol level.

Again, the contention that breath alcohol tests are vulnerable to problems as the result of contamination has not been substantiated by the thousands of tests in the field, where simultaneous breath and blood samples have been obtained. I can only believe that this biased representation of the reliability of breath testing is the result of self-serving purposes.

Hume and Fitzgerald call for the saving of breath samples to detect operator or instrument error. The current state of the art with regard to breath capture is such that it is unlikely that such errors would be detected by this method. Breath capture devices are less accurate and reliable than today's breath instruments. Breath capture devices are also subject to random errors of some magnitude. In instances where large differences between the original breath test and the captured breath sample are obtained, the error is most likely due to the capture device and not the breath instrument. The nature of the breath capture device is such that errors arising from the device itself can be neither confirmed or disputed. In many instances, depending on the type of breath instrument and device, any erroneous breath test results would carry over to the capture device.

In consideration of those accused of driving under the influence of alcohol, I strongly support the alternative we have adopted in California of offering breath test subjects their own blood sample. This provides the indivi-

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dual with the most accurate body fluid and also allows for multiple tests should errors or problems with the analysis occur. Although we have yet to encounter a situation where operator error or a malfunctioning instrument gave an erroneous breath result relative to the blood level, the practice of providing a blood sample is valuable from a philosophical standpoint in that it gives the defendant an opportunity to challenge the evidence offered against him by the prosecution.

Hume and Fitzgerald also urge the use of at least two tests for alcohol taken at least 30 minutes apart to resolve the problem of determining a blood alcohol level at a previous time. However, this will not solve the problem. In the post-absorptive state, the change in blood alcohol level over 30 minutes falls within the range of experimental error. Hence it will not be clear whether any decline is the result of elimination, any increase is the result of absorption, or a change either way is the result of a normal fluctuation in the blood alcohol level as the result of the dynamic between absorption and elimination. It is also unlikely that any large increases in blood alcohol level would be found which result from the initial pre-absorptive state. Because the period of rapidly increasing blood alcohol levels is not sustained for long periods, an individual who had ingested large quantities of alcohol just prior to arrest would most likely be near the blood alcohol maximum by the time he is questioned in the field and transported for a test.

There are many areas surrounding blood alcohol testing which generate considerable attack by attorneys. Only a few of these were raised in Hume and Fitzgerald's article, and these are the only ones to which I have responded. The field is complex and the literature is vast. It is never easy to present a fair and concise discussion of the many facets of alcohol testing. I do feel, though, that Analytical Chemistry is obligated to its readers to present information that is free of the obvious distortions and half-truths that were present in the Hume and Fitzgerald article.

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