Newsletter

California Association of Criminalists

President
SANDRA WIERSEMA
San Diego Police Department
1401 Broadway
San Diego CA 92101
(619)531-2646

President Elect
ESTON SCHWECKE
Huntington Beach Police Department
2000 Main Street
Huntington Beach CA 92648
(714)536-5682

Secretary
HIRAM K. EVANS
San Bernardino County Sheriff's Office
Forensic Science Laboratory
P.O. Box 1557
San Bernardino CA 92402
(714)387-2200

Treasurer
JAMES WHITE
Orange County Sheriff's Department
P.O. Box 449
Santa Ana CA 92702
(714)834-4510

Regional Director - North
ALAN KEEL
Oakland Police Department
Criminalistics Laboratory
455 Seventh Street
Oakland CA 94612
(415)273-3386

Regional Director - South
CAROLE SIDEBOTHAM
Orange County Sheriff's Department
P.O. Box 449
Santa Ana CA 92702
(714)834-4510

Membership Secretary
CAROL HUNTER RHODES
California Laboratory of Forensic Science
17842 Irvine Blvd.
Suite 224
Tustin CA 92680
(714)669-9461

Editorial Secretary
JAMES L. NORRIS
San Francisco Police Department
Crime Lab, Room 435
850 Bryant Street
San Francisco CA 94103
(415)553-1161

Immediate Past President
GRADY GOLDMAN
Contra Costa Sheriff's Office
1122 Escobar Street
Martinez CA 94552
(415)676-2962

Table of Contents

July 1989

Also Included in This Mailing:

Announcement of the Fall 1989 Seminar

Meeting Abstracts from the Spring 1989 Seminar

CONFERENCES AND SEMINARS

CALIFORNIA ASSOCIATION OF TOXICOLOGISTS

August 5, 1989

This meeting will be held in northern California, the meeting site has not yet been established, it will be hosted by Bob Fogerson. For further information, contact Lee B. Knight, CAT Vice President, Memorial Healthtech Laboratories, 701 E. 28th Street, Suite 113, Long Beach CA 90806. (213) 595-3427

CALIFORNIA ASSOCIATION OF CRIMINALISTS

October 19 - 21, 1989

The Fall 1989 Seminar of the California Association of Criminalists will be held at the Irvine Marriott, Irvine, California from October 19 - 21, 1989. The seminar will feature a bloodspatter workshop, a hair examination tutorial, an "alternate viewpoint" panel which will discuss cases in which differences of opinions have arisen, and a panel on professionalism in forensic science. For further information, contact Carol Rhodes, California Laboratory of Forensic Science, 17842 Irvine Blvd., Suite 224, Tustin CA 92680. (714)669-9461.

NORTHWEST ASSOCIATION OF FORENSIC SCIENTISTS

October 17 - 20, 1989

The Fall 1989 Meeting of the Northwest Association of Forensic Scientists will be held October 17 - 20, 1989, at the Concord Hilton in Concord, California. Tentative plans at this time include workshops on PCR, drug pharmacology, bombs and booby traps at clandestine laboratory sites, and the use of personal computers in the crime laboratory. For further information, contact Roger A. Ely, Chairman, DEA Western Laboratory, 390 Main Street, Room 700, San Francisco CA 94105.

INTERNATIONAL SOCIETY FOR FORENSIC HEMOGENETICS

October 18 - 20, 1989

The 13th International Congress of the International Society for Forensic Hemogenetics will be held in New Orleans, LA, from October 18 through 20, 1989. For further information, contact Dr. Herbert Polesky, Memorial Blood Bank Center Minneapolis, 2304 Park Avenue South, Minneapolis MN 55404.

CALIFORNIA ASSOCIATION OF TOXICOLOGISTS

November 4, 1989

This meeting will be held in San Diego and hosted by Dick Shaw. For further information, contact Lee B. Knight, CAT Vice President, Memorial Healthtech Laboratories, 701 E. 28th Street, Suite 113, Long Beach CA 90806. (213) 595-3427

PAN AMERICAN ASSOCIATION OF FORENSIC SCIENCES

November 1989

The Fourth International Meeting of the Pan American Association of Forensic Sciences will be held in Bogota, Columbia. The theme of the meeting is "The Sciences and Justice." For further information, contact Dr. Egon Lichtenberge, Carrera 11 A 96-26, Bogota, Columbia.

INTERNATIONAL ASSOCIATION OF FORENSIC SCIENCES

October 24-31, 1990

The IAFS meeting will be held in Adelaide, Australia, in October, 1989. For further information, contact Dr. W. J. Tilstone, President IAFS, Forensic Science Center, 21 Divett Place, Adelaide SA 5000. (08) 226-7715 FAX (08) 224-0174

News about our Members

This section of the Newsletter is designed to let others within the Association know what our members have been doing - job changes, promotions, awards, or other activities that might be of interest to the members. Please send information to the Editorial Secretary.

Joe Orantes Retires

Joe Orantes, a CAC member for over 25 years, has retired from the San Diego Police Department after 31 years of service. He is now self-employed as a consultant. He is presently doing consulting work for the U.S. Department of Justice in Latin America.

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.)

FORENSIC SCIENTIST II (Serologist)

The **Palm Beach County Sheriff's Office** is seeking applicants for a forensic serology position. This job requires 5 years experience as a forensic serologist and the ability to perform the complete range of forensic serology examinations including both enzyme and antigen techniques. The laboratory is anticipating starting DNA analyses within a year and is looking of an applicant who can assume a leadership role in that area. The salary range is $30,192 - $41,556. For further information, contact Richard L. Tanton, Director, Palm Beach Sheriff's Crime Lab, 3228 Gun Club Road, West Palm Beach FL 33406. (407) 471- 2220.

CRIMINALIST/SENIOR CRIMINALIST

The **Orange County Sheriff's Department** has several openings at the Criminalist and Senior Criminalist levels. Qualifications include a Bachelor's Degree in Criminalistics, Chemistry, Biology or a related field. The Senior Criminalist requires two years of experience in a forensic laboratory. The monthly salary range is $2,206 - 2,966 (Criminalist) and $2,881 - 3,881 (Senior Criminalist). For further information, contact Margaret Kuo, Forensic Science Services, Sheriff's Department, P.O. Box 449, Santa Ana CA 92702, (714-834- 4549

CRIMINALIST - Latent Print Section

The **Kansas Bureau of Investigation** has openings at the Criminalist I and Criminalist III in the latent print section. The position involves the comparison of latent and inked finger, sole and other skin impressions and the development of these impressions on evidence using a variety of techniques. The job requires a degree in a physical or natural laboratory science, or equivalent experience. The Criminalist III position in addition requires four years of forensic laboratory experience. The salary range is $24,240 - 32,472 (Criminalist I) and $30,936 - 41,460 (Criminalist III). For further information, contact Anne Brunt, Personnel Director, Kansas Bureau of Investigation, 1620 Tyler, Topeka KN 66612.

CAC MERCHANDISE

Show your colors (or colours) - at home, at work or at play. Be the first (and probably the only) person on your street to have one of these. Limited stocks on hand at CAC Seminars and by mail (via John DeHaan Calif DOJ - Sacramento). Special order items and colors available on request. All CAC clothing items bear a specially embroidered emblem. These goodies are offered to you at cost, so you won't find a better deal.

The current offerings are listed here. if you would like to see a particular product offered, contact **John DeHaan** (DOJ-CCI) or **Sue Swarner** (Contra Costa County).

Ties- at long last custom embroidered logo, navy or burgundy: $12.00

Sweatshirts- various colors (50/50 blend): $11.00, hooded $12.50

Hats (one size fits all, mesh and foam, various colors with white: $5.50

Mugs: Glazed ceramic mugs: $6.50

Name Badges: Custom engraved (name & agency): $5.00

Patches: CAC logo only, black-on-white: $5.00

DNA - THEORY AND PRACTICE

An Announcement from the Northern Section Serology Study Group

Alan Keel has been working with the University of California, Berkeley Extension Service to develop a course in Forensic DNA analysis. The course is designed to give criminalists complete hands-on experience in RFLP and PCR typing methodologies, including pertinent nucleic acid chemistry.

The course will consist of two parts, theoretical essentials (lecture) and practical lab experience. The lecture phase will be given at night and may be taken without participation in the lab part of the class. The lecture phase is mandatory for participation in the laboratory phase.

Dale Dykes of the War Memorial Blood Bank in Minneapolis, MN and his assistant will instruct the lab phase of the class. Dale provided this outline of the wet lab:

Day 1
Extraction, precipitation, quantitation of DNA.

Day 2
Requantitation, restriction, restriction monitoring, qualitation, pouring and loading gels.

Day 3
Southern blotting (capillary, vacuum), dot blots, nick-translational probe labeling (non-isotopic), QC of labeled probes, hybridization.
Pouring and loading more gels.

Day 4
Detection of RFLPs, X and Y Chromosome detection, RFLP interpretation.
Follow up on second gels.

Day 5
Statistical analysis of RFLP data, considering probes, restriction enzymes, and equipment.
Completion of second gels.

We will squeeze in PCR amplification, and ASO immobilized probe typing by dot blot probably in days 3-5, using samples previously prepared. **Ed Blake** of Forensic Science Associates will help with this part of the wet lab. Spin dialysis concentration of DNA will be included.

In the evenings, **Cecelia von Beroldingen** will lecture on the essential aspects of molecular biology and nucleic acid chemistry for forensic scientists. Major topics will be: DNA structure, chromatin structure, the organization of eukaryotic DNA, DNA replication, and alterations in DNA.

The course will be held July 24-28, 1989, on the UCB campus. Cost for both phases will be $850.00. Cost for the lecture phase only will be substantially less ($150.00). The wet lab is limited to 26 participants and enrollment will be on a first-come, first-serve basis. The lecture phase is not so limited.

This is a lot of money, but a bargain for what you will get from this course. Dale has conducted this type of course in several 3-5 day workshop settings, even internationally. **George Sensabaugh** assisted Dale in a similar 3-day workshop and deserves much of the credit in convincing UCBEx to undertake such a costly and rather esoteric course. The course will not be advertised in the summer of '89 catalog to the general public. CAC members will have first shot at enrollment through a brochure to be mailed exclusively to CAC members prior to public announcement. It is suggested that you respond promptly. Several paternity and tissue-typing labs in the Bay Area are aware of this training opportunity and have expressed a lot of interest.

We are exploring sources of funding for the course, but at this point assume that you or your agency will bear all costs. Be sure to include travel, food, and lodging as well as tuition in your budget plans if you will not be able to commute to Berkeley (unless you can get a local member to put you up or put up with you for a week).

I mentioned earlier to some of you that UCLA might offer a similar program if this one is successful. However, this will be Dale's last workshop this year as he is going into private business. So, don't count on a sister course from Dale at UCLA anytime soon.

CAC DRUG STUDY GROUP

Ken Fujii

Contra Costa County Sheriff's Department

A Drug Study Group meeting was hosted by DEA-San Francisco, on March 23, 1989 at their new laboratory. Space, equipment, design and newness, combine to make a beautiful facility.

Quantitative Analysis

Results for Heroin, Methamphetamine and Cocaine were reported by some of the labs that took samples. The results agreed within experimental error. The discussion that followed included:

-Quantitative analysis techniques used by each lab in attendance
-Linearity, accuracy and precision of the methods
-Error reported and justification
-Quality Assurance

Recent Casework

Lisa Brewer - DOJ Salinas discussed the MD at Haight Ashbury Free Medical Clinic who treated the narcotics investigator who received the LSD overdose.

Ken Fujii - Related an HI, Red Phosphorous lab encountered by Tom Abercrombie, DOJ - Riverside, where the reaction over-heated, iodine and phosphorus distilled into the room and condensed all over the walls, furniture, etc. About a pound of white phosphorous remained in the reaction flask.

Torrey Johnson - Passed along the information that Mercury, Nitric Acid and Methanol were combined to make fulminate of mercury at a drug lab in San Bernardino.

Santa Clara County -

-PCC yields a positive Scott test unless all blue removed.
-Rocks of crack, half are phony

Sacramento County -

-Cocaine rocks, Quartz rocks
-non marijuana hand rolled cigarettes.

Alameda County -

-Lots of Methamphetamine
-Pyrilamine rocks from PMS capsules, gives purple in Sulfuric Acid and Blue CoSCN
-Barbs
-Methadone

Contra Costa County-
-PMS Rocks, Powder Milk rocks
-LSD lab with lots of strange drugs: DMT, Bromodimethoxy-Phenethylamine and Crystal Meth.

Oakland -
-Crack combined with other caines, clean-up by prep TLC using Ethyl Acetate; Prep TLC to clean -up Tar Heroin
-Marijuana, Heroin HCl
-Bunk rocks of waxes and soaps

DOJ - Redding
-Meth, opals Coc.HCl, 1-2" crystals of d-Meth, MDMA

DOJ - Salinas

-Cocaine Base submissions increasing, dough rocks, heroin. A lot of drugs from Santa Cruz: LSD , psilocybin, MDMA, 5-Methoxy-N, N-dimethyltryptamine reported as an "analog" pursuant to AB2700.

Customs - Opium, Cocaine on currency, method of STD addition for quants.

DOJ - Sacramento - A lot of meth labs employing thionyl chloride, using plastic garden spray tanks with a tire air valve installed. Can extract the waste product in the field and bring only the extract back to the lab.

DEA - Generic Percodan tablets, question regarding the street value of mescaline; Fentanyl lollipops.

CCO- Anabolic steroids, legitimate and counterfeit.

Shulgin-

-Researching the pyrolysis of cocaine free-base, at about 220 degrees C. dehydroecgonine methyl ester and benzoic acid are produced. These are probably what is inhaled when cocaine base is smoked.

- For cocaine analysis, a thermally stable species is made by reducing the double bond with Pd and Sodium borohydrate.

- Mescaline analysis; grind up peyote, make basic, extract contaminants with diethylether, then extract mescaline with chloroform or dichloroethane.

- San Francisco P.D.
PCP-laced lemon drops, mostly crack wrapped up in plastic bindles, LSD.

Roger Ely presented a P2P synthesis using trifluoromethanesulfonic acid, benzene, methylene chloride and 2-nitropropene. The procedure was published in Journal of Organic Chemistry in a communication by Kazuaki Okabe, et al. It is not likely that this reaction will be found at clan labs because 2-nitropropene does not appear to be commercially available in its synthesis could be very dangerous.

Clan Lab Investigators' Group Forming

Individuals from law enforcement laboratories who are interested in the subject of clandestine drug laboratory investigation may be interested in a new association that is being formed called Clandestine Laboratory Investigating Chemists (CLIC). Although it is currently only in the formative stages, this association promises to address topics of interest to people involved in clan lab investigations. For further information, contact any of the following people: **Tom Abercrombie** (Calif DOJ - Riverside, P.O. Box 3679, Riverside CA 714-782-4170), **Ken Fujii** (Contra Costa Sheriff's Lab, 12122 Escobar Street, Martinez CA 94553 415-646- 2455), **Roger Ely** (DEA Western Lab, 390 Main Street Room 700, San Francisco CA 94105. 415-995-5131), **Steve Johnson**, Los Angeles Police Department Laboratory, 150 N. Los Angeles Street, Los Angeles CA 90012. 213-485-6501) or **Mark Kalchik** (Calif DOJ - Fresno, 6014 N. Cedar, Fresno CA 93710. 209-294-2982)

John E. Davis

(1919-1989)

John E. Davis possessed a scientist's insatiable curiosity about the world around him. Early on, he developed the passion for scientific crime investigation which he felt all his life and which led him, like many of the other founding members of the C.A.C., to Berkeley where he received his B.S. degree in "Technical Criminology" in 1941. John spent his first year as a techni cian in the Missouri Highway Patrol laboratory, returning to California in 1943 to establish the Oakland Police Department Crime Laboratory. John Davis built the Oakland laboratory from an 8'x8' corner of the police department Identification Section into a modern full-service facility, which he directed until his retirement in 1977.

Although he never lost his early love for fingerprints and photography, John was the quintessential "generalist". An innovative experimenter, he strove constantly to improve existing techniques as well as to develop new ones. His publications run the gamut from chemical microscopy to firearms examination and from glass comparison to blood typing, and he was the author of a widely recognized text on toolmark and firearm identification. He invented the Striagraph, a research instrument designed to profile the topography of a fired bullet. In his later career, his expertise in firearms examination led to his involvement in the investigation of many highly publicized cases, including the murder of Oakland School Superintendent Marcus Foster and other crimes of the Symbionese Liberation Army.

Throughout his career, John was an active supporter of, and participant in professional organizations and was a Charter Member of the C.A.C., a Life Member of the I.A.I., and a Distin guished Member of the A.F.T.E. His scientific contributions to these organizations were many and significant,, but it is the CAC Code of Ethics which may be his most lasting legacy. John was the primary author of the Code, and it bears the stamp of his personal philosophy in every line. In 1976, the C.A.C. presented John with its highest honor, the Roger Sherman Greene Award, in recognition of his achievements in both the scientific and ethical aspects of our profession.

John E. Davis was a scientist, an inventor, a philosopher and an artist. He was also, first and foremost, a trusted and valued friend. On April 3, 1989, John died at his home in Lafayette, California. We will miss him. *Vaya con Dios*, John.

Jan S. Bashinski

Abstracts

Fall 1987 Meeting of the Mid-Atlantic Association of Forensic Scientists

(from MAFS Newsletter, 17:2, March 1989)

"Detection of Immunoglobulin Allotypes in Sexual Assault Evidence"

Moses S. Schanfield, Allo-Type Genetic Testing Inc., Atlanta, GA

Immunoglobulin allotypes (GM and Km markers) in semen and vaginal secretions has been a stumbling block to the detection of these useful markers in sexual assault cases. Using a sensitive V-bottom microplate procedure, evidence from 22 sexual assault cases were tested for Gm and Km allotypes. Evidence from 19 cases had been stored frozen or were from recent cases (fresh cases), while the evidence from three cases had been stored unprotected for 3-7 years at room temperature (old cases.) No allotypes could be detected in any of the old case evidence (one swab, ten drainage sites). In contrast, Gm and Km markers were detected in one or more pieces of evidence tested from all fresh cases. Gm and Km markers were detected in 77% of evidence tested(9/10 swabs and 23/32 drainage sites, 1/1 aspirate.) Allotypes provided genetic information on the assailant in 53% of cases and 51% of the evidence. Further, drainage site evidence was significantly more informative than swabs (65% versus 30%). In mixed stains, if allotypes were detected, victim allotypes were also detected. Allotypes were detected in order of concentration with Km = G1m greater than G2m greater than G3m. Too few cases have been tested for A2m to evaluate it.

"Evaluation of DNA in Forensic Evidence"

Lorah McNally, Robert Shaler and Lawrence Kobilinsky, Lifecodes Corporation, Elmsford, NY.

In the field of forensic serology there have been preliminary applications of the DNA "fingerprint" technique. The purpose of this study was to examine the parameters that influenced the amount of suitable DNA that could be extracted from 100 casework blood samples to provide the first evidentiary data base for forensic samples. Samples were extracted and the DNA was precip itated and run in 8.8% agarose gels at 50 volts for two hours. Lambda-Hind III restriction fragment control markers were run alongside sample lanes to determine if high molecular weight DNA was present. Results indicated that sample volume, substrate condition, and environmental exposure influenced the quantity and quality of the isolated DNA.

Selected samples exhibiting high molecular weight band patterns were subjected to restriction analysis, involving digestion, electrophoresis, hybridization, and blotting. Examination of the electrophoretic band patterns produced by the restriction fragment length polymorphisms (RFLPs) provided an effective means of differentiating among samples.

"Detection of ABO Blood Group Substances in Saliva by an ELISA Method Using Monoclonal Antibodies"

Lois Tonelli, Terence Phillips and Dr. Nicholas T. Lappas, The George Washington University

An enzyme-linked immunosorbent assay (ELISA) using monoclonal antibodies was evaluated. The secretor status of 40 donors was determined by a standard absorption-inhibition method. Fluid samples and extracts of stained material then were tested by means of the ELISA method. Using this method, blood group substances A, B, and H were detected in the fluid samples at a maximum dilution of 1:1,000,000; 1:100,000 and 1:10,000 respectively. Three of the samples identified as nonsecretor saliva by absorption-inhibition demonstrated low levels of blood group substances by ELISA.

Extracts of 2, 3 and 5 microliter stains were tested by the same ELISA method. Results consistent with the absorption-inhibition results were obtained with all samples prepared from the saliva of A and O secretors. Attempts to detect blood group substance B were less successful. In one set of stains prepared from a group AB secretor, the substance was not detected.

"Application of Molecular Biology to Forensic Serology"

Bruce Budowle, FSRTC, FBI Academy, Quantico, VA

The possibility of individualizing body fluid stains at the same level as a fingerprint using molecular biology techniques has generated considerable interest from the forensic serology commu nity. Prior to analysis of evidentiary materials by

molecular biology/DNA typing methods, the serologist must familiarize himself, consider and /or address at least (1) basic biochemistry of DNA, (2) available and practical methodologies, (3) avail ability of resources, (4) practicality of laboratory set-up and operation, (5) validation criteria, (6) technology transfers and (7) legal issues (Frye Rule). This presentation will provide forensic serologists with a fundamental understanding of DNA- based technology discussing such topics areas a basic biochemis try, restriction endonucleases, isolation and separation of DNA, hybridization, RFLP, dot blots, sequencing, validation criteria, and the FBI research program.

"Problems Encountered in the Use of Monoclonal Blood Grouping Reagents for Detection of B and H Blood Group Substances in Semen and Saliva"

James L. Mudd, FSRTC, FBI Academy, Quantico, VA

Using an enzyme-linked immunosorbent assay (ELISA), this study investigated the use of monoclonal antibodies (MABs) for detecting secreted ABH blood group substances (BGS) in semen and saliva. BGS titers from 111 semen specimens (41 O, 30 A, 12 B, 5 AB, and 23 nonsecretors) were determined by ELISA using a single clone MAB. The data revealed that the anti-B failed to disclose the presence of the BBGS in 25% (3/12) and 80% (4/5) of the semen specimens from groups B and AB donors respectively. However, when titered using a blended anti-B MAB reagent, the B BGS were readily detected in these specimens.

Absorption-inhibition studies using single clone MAB reagents resulted in significantly lower B BGS titers for some group B semen specimens than when assayed using a polyclonal anti-B reagent. Blood group substance titers of the saliva from 66 donors (28 O, 19 A, 8 B, 2 AB and 9 nonsecretors) were also determined by ELISA using MABs. In 12 of these specimens single clone Anti-B or anti-H failed to detect the corresponding BGS. These studies suggest that the failure of the MAB;s to recognize the soluble BGS in some semen and saliva specimens may be attributed to differences in MAB specificities and/or the heterogeneity present in B and H antigens. Consequently, care must be taken in the selection of monoclonal blood grouping reagents for the detection of secreted BGS in semen and saliva.

"The Use of Bloodstain Pattern Analysis in Incident Reconstruc tion"

Robert P. Spalding, Serology Unit, FBI Laboratory, Washington, DC 20535

Bloodstain pattern analysis is a field of study which relies on the fact that blood, as a fluid, obeys certain physical laws and will form reproducible patterns under similar sets of circumstances. When conducting such studies in casework, the ultimate goal is to, as nearly as possible, reconstruct the events which produced the observed patterns. Some of the basic principles involved will be discussed with an emphasis on their application to casework.

"Persistence of Gm Allotypes in Bloodstains Exposed to Adverse Conditions"

F. Samuel Baechtel and Jill E. Brinkman, FSRTC, FBI Academy, Quantico, VA 22135

This study assessed the influence(s) of several common contaminants on the successful detection of Gm alloantigens in dried bloodstains. Bloodstains of known volume were prepared with whole blood derived from a single donor (Gm A, X,F; BO, G, G5) on denim blue jeans that had been precontaminated in defined areas with substances (gasoline, grease, clean and used motor oils, brake fluid, and soil) likely to be present on evidentiary materials. Some bloodstains were overlayed with semen or urine while still wet. After drying, half of the stains were maintained at room temperature while a replicate array of stains was covered (but not sealed) with plastic and placed in direct sunlight outside the laboratory building.

Except for one category, the stains kept in the laboratory retained the full array of allotypes over the study period, regardless of the contaminant. However, for the stains composed of blood and urine, no A or BO blood groups were detectable by week four; and all allotypes were undetectable in these stains by week six.

Although the patterns of loss of allotype detectability varied in stains stored outdoors it was clear that the IgG3 allotypes became undetectable more rapidly than those which reside on IgGi. For example, BO could not be detected in control bloodstains nor in stains deposited in gasoline, grease and used motor oil after two weeks of outdoor exposure. The most rapid rate of antigen loss was sustained by those stains that had been mixed with semen or urine prior to drying. By the sixth week of exposure, the only allotypes still detectable were X and F in bloodstains that had been placed in clean motor oil. A related series of experiments, in which the albumin recovered from these stains was quantified, suggests that the inability to extract IgG from the stains rather than antigen degradation may be responsible for the loss of allotype detectability.

Abstracts from the 1988 Annual Meeting of the Mid-Atlantic Association of Forensic Scientists

"A Microplate Method for Reverse ABO Typing of Bloodstains"

James L. Mudd, FSRTC, FBI Academy, Quantico, VA 22192 and Dwight E. Adams, FBI Lab, Washington, DC 20535

A sensitive and reliable assay using V-bottom microplates is described for the detection of the ABO blood group alloantibodies in bloodstained material. This technique was originally described in the Journal of Forensic Sciences in 1986. However, it has been modified since then and reevaluated with increased conclusive grouping results when compared to the Lattes crust method and used in conjunction with a forward absorption-elution procedure.

"Missing Body Identification Using DNA Restriction Fragment Length Polymorphisms (RFLPs)"

Dr. Robert Shaler, A. Giusti, Dr. M. Baird and L. McNally, Lifecodes Corp., Old Saw Mill River Road, Valhalla, NY 10595

Traditional forensic serological methods such as antigen and /or protein-enzyme phenotyping, do not provide sufficient information to adequately identify an individual from bones, tissues, or bloodstains.

Three separate missing body identifications using DNA RFLPs were accomplished. The evidence involved: (1) a piece of brain tissue found in an automobile; (2) a bloodstain found on a vacuum cleaner; and (3) a dismembered body.

Identifying the missing persons was accomplished by performing a forensic paternity test using the RFLP patterns obtained from the individuals believed to be their parents. These RFLP patterns were compared with those obtained from the evidentiary specimens.

"DNA Analysis in the FBI Laboratory"

Bruce Budowle, Dr. Sam Baechtel, Dr. Hal Deadman, and Dr. Randall Murch, FSRTC, FBI Academy, Quantico, VA 22192

The analysis and comparison of DNA recovered from biological materials is an important new forensic tool. The FBI Laboratory has embarked on a widespread research and development program to study and evaluate existing methodologies. Procedures for implementation of DNA technology into the FBI Laboratory and for transfer of this technology to other forensic laboratories are currently being developed.

The FBI Laboratory is working in the following areas: (1) restriction fragment length polymorphisms, (2) polymorphisms in the HLA-DQ alpha gene; (3) The polymerase chain reaction; and (4) direct sequencing of mitochrondrial DNA. Topics under investigation include sensitivity of different methodologies, validation procedures, availability of probes, equipment requirements, technology transfer, and training.

"Use of Multiple-Locus and Single-Locus DNA Probes in Forensic Cases"

Dr. Robin W. Cotton, Cellmark Diagnostics, 20271 Goldenrod Lane, Germantown, MD 20874

Application of molecular genetic techniques to forensic samples is a rapidly expanding area of investigation. Both single-locus and multi-locus type DNA probes can be utilized in forensic cases. Probe use is determined by the amount and condition of the DNA extracted from the evidence and by the nature of the case. We have investigated the effect of environmental conditions on the quality of DNA which can be extracted from bloodstains, semen stains and hair roots. Suggestions for stor age conditions will be made and examples of cases will be shown.

"A Forensic Approach to the Analysis of Black Plastic Tapes"

Dr. Edward G. Bartick and Rena A. Merrill, FSRTC, FBI Academy, Quantico, VA 22135

Pieces of plastic tape are often found at bombings and other types of crime scenes. It is advantageous to identify the manufacturer of the tape as a lead to a suspect or to be able to associate a tape of the same composition found in a suspect's possession.

This paper will describe several approaches of sample handling for infrared (IR) analysis and methods of performing data base searching as an aid to identify chemical composition and the manufacturer. The IR sampling consists of reflectance spectrometry (ATR IR) of the adhesive and backing sides of the tapes. Spectra are also obtained on extractions of the backing plasticizer. Computerized data base searching is performed on both IR spectral data as well as text information. These methods have been found to be significant aid for forensic examination of black plastic tapes.

Proposal for a Forensic Science Curriculum Catalog

Lou Maucieri

California Criminalistics Institute

4949 Broadway, Sacramento, CA 95820

Overview:

In the forensic science profession, the earliest contributions were made by academic scientists whose aid was enlisted by the police. With the advent of direct service crime laboratories, the need for training of staff is impeded by a lack of uniform curricula for various disciplines [1,2]. Past proposals have included a one-month survey course [3] and graduate-level outlines [4,5,6]. Even today we have similar curricula called forensic chemistry, criminology, or criminal justice. Training in other career fields has been suggested to respond to the growing need for crimininalists [7]. This has been discussed in the literature for the last fifteen years [8,9,10]. And yet today, everyone's training has gaps. An outline of a uniform course curriculum should be the foundation of a course catalog. This should be viewed as a menu with the idea of ultimately reaching a consensus in each of the disciplines in forensic science. Syllabi, outlines, exercises, and scheduling could then be developed by a group working toward consensus and eventual implementation.

Application of a Forensic Curriculum:

This profession should develop a uniformly recognizable curriculum for various disciplines. Once accepted, it would take the place of the existing semi-formal process which combines OJT with academic courses on a "catch-as catch-can" basis. This proposal responds to the growing specialization in the forensic profession in spite of continuing debates [10]. It recognizes that some specialties would share certain core training, e.g. courtroom testimony, lab safety, report writing. It also acknowledges specialists in the allied fields of questioned document examination and latent fingerprint analysis as forensic scientists. Provision is made to include support staff, clerical and laboratory technicians, within the forensic science sphere. Finally it is proposed that training be provided for the often-ignored class of forensic science supervisors.

The outline presented here assumes these points:

1. Staff in the various classifications have successfully fulfilled entrance requirements of various agencies.

2. The need for specialty-oriented training will continue and grow.

3. The profession would benefit from an organized body of knowledge of entry, intermediate, and advanced levels.

4. The curriculum for scientists should stress lab work, field work, court work and communication skills.

5. The technical, clerical, and supervisory classes all need to receive training and have recognizable career ladders.

Individual and Professional Benefits:

Once universally accepted, the curriculum would provide a path for advancement by individuals in the laboratory. This would take the form of a career development "contract" with their administration. The pathway would require a demonstration of appropriate skills and knowledge on detailed tasks. Perhaps certification groups could determine when individuals would so advance. In this way, the expensive and time-consuming civil service examination process could be streamlined. Qualified people would not have advancement delayed by this cumbersome process.

With uniform standards for all members of the forensic service, the lower-paid specialists, particularly clerical, would move into a paraprofessional status. To continue to attract qualified people for support roles, career ladders or lateral opportunities to other fields should be developed.

With acceptance by regional forensic science organizations, this curriculum could launch a uniform certification process on a national level. Lab accreditation would also be easier for those seeking it. In California, various courses could be submitted for agency reimbursement by POST. Finally, cooperation by the university system could be pursued to establish academically accredited degree programs or extension certificates for all participants.

Conclusion:

In summary, this proposal would identify an organized body of knowledge for various forensic specialties. It provides a core of common training featuring communication skills and technical elements. Technical, clerical, and supervisory staff are all included and have entry, intermediate, and advanced levels suggested. This would provide career ladders where needed and possibly streamline the promotion process. Staff certification, lab accreditation, agency reimbursement and academic programs could all be facets of this endeavor.

References:

1. Desio, P.J., "Undergraduate Education in Forensic Science and Chemistry," J. Chem. Ed., 62 (12), 1985, 1053.

2. Williams, R.L. "The Training of Scientific Experts," J. For. Sci. Soc., 16, 1976, 279-282.

3. Berry, K.O., "Forensic Science, a Course for the January Interim," J. Chem. Ed., 50 (3) 1973, 208-209.

4. Caddy, B. "Instruction in Forensic Chemistry as Part of an M. Sc. Course in Forensic Science," J. For. Sci. Soc. 13, 1973, 249-252.

5. Nelson, P.F. and Wood, C.N., "The Biological Section of an M. Sc. Course in Forensic Science," J. For. Sci. Soc.,13, 1973, 253-259.

6. Fish, F., "Academic Forensic Science: Retrospect and Prospect," J. For. Sci. Soc., 13, 1973, 243-247.

7. Pfau, R., "Medical Technology: A Viable Source of Criminal ists," J. For.Sci., 27, 1987, 199-205.

8. Whitehead, P.H., "The Forensic Science Society Education Committee Report 1973-74," J. For. Sci. Soc., 15, 1975 265-267.

9. Lateef, A.F., "A Proposed Curriculum in Forensic Science "J. Can. Soc. For. Sci., 7, 1974, 26-36

10. Davis, R. J. "Specialists in Desktop Publishing," J. For. Sci. Soc., 28, 1988, 77

OUTLINE OF FORENSIC SCIENCE CURRICULUM CATALOG

CRIMINALISTICS

Serology

Entry	Intermediate	Journeyman
Forensic Academy A&B	Molecular Biology	Elisa
Basic Blood	Genetic	DNA in Blood, Semen, Hair
Basic Microscopy	Antigens	
Forensic Lab Safety	Enzymes	
Public Speaking	Proteins	
Technical Writing	Statistics	
Courtroom Responsibilities	Hair & Fibers	
		Sexual Assault Evidence
		IEF
		Blood Splatter
		Crime Scene
		Samples at Autopsy

Trace

Entry	Intermediate	Journeyman
Forensic Academy A&B	Hair & Fibers	Analysis of Low Explosives
Gas Chromatography	Chem. Instrumentation	
Analysis of Accelerants	Paint, Glass, Soil	
Basic Microscopy	Spectral Interpret.	
Forensic Lab Safety		
Public Speaking		
Technical Writing		
Courtroom responsibilities		

Controlled Substances

Forensic Academy A&B	Chem. Instrumentation	Illicit Lab Processing
Basic Microscopy	Spectral Interpret.	Illicit Lab Analysis
Screening Tests	Medicinal Chemistry	
Gas Chromatography		
Forensic Lab Safety		
Public Speaking		
Technical Writing		
Courtroom responsibilities		

Supervisors

Forensic Academy A&B	Positive Discipline	Managing Conflict
Basic Supervision	Statistics	Decision Making
Basic Blood	Effective Listening	
Basic Microscopy		
Forensic Lab Safety		
Sexual Assault Evidence		
Hair & Fibers		
Chem. Instrumentation		
Crime Scene		
Public Speaking		
Technical Writing		
Courtroom Responsibilities		
Casework Review		

Alcohol/Toxicology

Forensic Academy A&B	Spectral Interpret	Pharmacology
FAS	Samples at Autopsy	Physiology
Gas Chromatography	Statistics	Impairment Interpret.
Forensic Lab Safety	Medicinal Chemistry	
Chem. Instrumentation		
Public Speaking		
Technical Writing		
Courtroom Responsibilities		

FA/TM

Forensic Academy	Blood Splatter Inter.	Shooting Reconstruction
Basic Microscopy	Crime Scene Processing	Off. Inv. Shooting
Safe Handling of Firearms	Samples at Autopsy	
Impression Phenom.		
Tool Manufacturing		

Firearms Manufacturing
Identification Criteria
Photomicrography
Forensic Lab Safety
Public Speaking
Technical Writing
Courtroom Responsibilities

Questioned Documents

Forensic Academy A&B
Impression Phenom.
Questioned Writing
Check Protectors
Courtroom Responsibilities
Public Speaking
Technical Writing

Instrumentation
(micro, VSC,SEM,ESDA,
projectina)
Lottery Tickets
Machine Copies
Sequence of Writings

Analysis Methods for
Papers and Inks

Latent Prints

Forensic Academy A&B
Impression Phenom
Latent Processing
Safe Handling of Firearms
Forensic Lab Safety
Public Speaking
Technical Writing
Courtroom Responsibilities

Crime Scene Processing
Photography of Latents

Special Techniques
Laser
Dyes
Enhanced Fluorescence

SUPPORT

Office Operations

Forensic Academy A
Time Management
Interacting with Public
Interacting with Your Boss
Telephone Protocol
Public Speaking
Effective Listening
Sperrylink/Mapper
Grammar Usage
Word Processing Fundementals
Correspondence

Stenography
Composition

Executive Secretary
Admin. Assistant/Analysis

Lab Technician

Forensic Academy A&B
Basic Microscopy
Chem. Instrumentation
Gas Chromatography
Public Speaking
Technical Writing
Courtroom Responsibilites
Forensic Lab Safety

Analysis of Accelerants
FAS/FAA
Basic Blood

Sexual Assault Evidence
Hair & Fibers

Notice to Contributors

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

This newsletter publishes material of interest to its readers and is pleased to receive manuscripts from potential authors. Meeting announcements, employment opportunities, course announcements, etc. are also solicited.

Advertisements are also accepted, although a fee is charged for their inclusion in the Newsletter. The acceptance of any advertisement is at the sole discretion of the Editorial Secretary.

This Newsletter is prepared using Ventura Publisher™ Ver. 2.0, running on an IBM AT-type microcomputer and printed on an HP Laserjet™ II printer. Because of its mode of preparation, the Editorial Secretary requests that, if possible, all submissions to the Newsletter be made in the form of files contained on 5.25 inch IBM formatted diskettes (Either 360KB or 1.2MB). The following word processing programs can be accommodated: Wordperfect 4.2 and 5.0, Wordstar 3.0, 4.0 and 5.0, Microsoft Word, XyWrite, Writer, and Multimate. Because of its widespread availability, Wordperfect 5.0 is preferred. Output from wordprocessing programs not listed above should be submitted in ASCII format. If possible, the submitted files should contain as few enhancements (bold, italic, centering, multiple typefaces) as possible. Drawing and images can also be directly imported, contact the Editorial Secretary for details and acceptable file formats.

The deadlines for submissions to the newsletter are December 15, March 15, June 15, and September 15.

FLASH FLASH FLASH FLASH

C.A.C.

FALL 1989 SEMINAR

OCT. 19, 20 & 21

IRVINE MARRIOTT

BLOODSPATTER *HAIR TUTORIAL*
PROFESSIONALISM *VENDOR DEMOS*
MORE

HOSTED BY CAL LAB & OTHERS
CALL EVE AT 714-669-9461 FOR INFO