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October 1987

CONFERENCES AND SEMINARS

CALIFORNIA ASSOCIATION OF CRIMINALISTS-70th ANNUAL FALL SEMINAR

October 22-24, 1987

The 70th semi-annual seminar of the CAC will be held at the Irvine Hilton, Irvine CA. For further information contact Eston Schwecke, Huntington Beach Police Department, Criminalistics Laboratory, 2000 Main Street, Huntington Beach CA 92648. (714) 536-5684.

40TH ANNUAL MEETING OF THE AMERICAN ACADEMY OF FORENSIC SCIENCES

February 15-20, 1988.

This conference will be held at the Wyndham Franklin Plaza, Philadelphia, PA. Contact AAFS, 225 South Academy Blvd., Colorado Springs, CO, 80910. (303) 596-6006.

SECOND SYMPOSIUM ON RECENT ADVANCES IN ARSON ANALYSIS AND DETECTION

February 15 - 16, 1988

This symposium will be held in conjunction with the American Academy of Forensic Sciences meeting in Philadelphia, PA. For registration information, contact AAFS, 225 S. Academy Blvd., Colorado Springs, CO 80910 (301)596-6006. Persons interested in presenting a paper during this symposium should contact Mary Lou Fultz, Program Chairman, ATF - National Laboratory Center, 1401 Research Boulevard, Rockville MD 20850 (202)294-0420.

SOUTHERN ASSOCIATION OF FORENSIC SCIENTISTS

May 5-7, 1988

The Spring, 1988, Seminar of the Southern Association of Forensic Scientists will be help at The Peabody--"The South's Grand Hotel"--in Memphis, Tennessee. Anyone interested in attending or in presenting a paper in one of the technical section meetings (Toxicology, Serology, Solid Dosage, Criminalistics, Pathology/Biology, Firearms) should contact Steve Nichols or Paulette Sutton, University of Tennessee--Toxicology Laboratory, 3 North Dunlap, Memphis TN 38163, (901)528-6355.

CALIFORNIA ASSOCIATION OF CRIMINALISTS - 71st SEMI-ANNUAL SEMINAR

May 19-21, 1988

The Spring, 1988, seminar of the California Association of Criminalists will be held May 19-21 at the Marriott Marina Hotel, Berkeley CA. For further information contact Charles Morton. Institute of Forensic Sciences - Criminalistics Laboratory, 2945 Webster Street, Oakland CA 94609. (415) 4512-0767.

SYSTEMATIC ANALYSIS OF LOW EXPLOSIVES

June 13 - 17, 1988

The Bureau of Alcohol, Tobacco and Firearms will conduct a course in the Systematic Analysis of Low Explosives, to be held at the BATF national Laboratory Center in Rockville, MD. For further information, contact Rick Stroebel, ATF National Laboratory Center, 1401 Research Boulevard, Rockville, MD 20850 (202)294- 0420.

41ST ANNUAL MEETING OF THE AMERICAN ACADEMY OF FORENSIC SCIENCES

February 20-25, 1989

This conference will be held at the Riviera Hotel, Los Vegas, NV. Contact AAFS, 225 South Academy Blvd., Colorado Springs, CO, 80910. (303) 596-6006.

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.

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 mentsments-ments will normally be run only one time. Members actively seeking employment are encouraged to contact the edi torial secretary for information about openings which become available between newsletters.)

LABORATORY DIRECTOR

The Maryland State Police Crime laboratory is looking for an individual to serve as director of the laboratory. The applicant must have a Master's degree in forensic science, or the equivalent, have qualified as an expert in criminalistics of forensic science in Federal or local courts, and had three years of experience as director of an independent laboratory or assistant director of a state or federal laboratory. Contact Maryland State Police, Attn: Civilian Personnel Manager, Personnel management Division, 1202 Reisterstown Road, Pikesville MD 21208

LABORATORY AGENT/CRIMINALIST II

The State of Colorado has an opening for a person with 5 years of experience in the comparison and identification of fingerprints and firearms. A college or university degree in criminalistics, chemistry, laws enforcement, police science, sociology is also required. Experience over the minimum can be applied on a year for year basis to the college requirement. For further information, contact Department of Public Safety, Personnel Section, 700 Kipling Street, 3rd floor, Denver CO 80215.

CRIMINALIST

The city of El Cajon, California, has an opening for a criminalist with 3-4 years of experience. The applicant must possess a degree from a four year college, or equivalent, in criminalistics or a related chemical or biological science. For further information, contact City of El Cajon, Personnel Department, 200 East Main Street, El Cajon CA 92020.

POSITIONS WANTED

A recent graduate from the Masters program at the University of Illinois at Chicago Circle is seeking a position as a criminalist in a laboratory in California. He has 8 years of experience in the Chemistry Section of the Forensic Science Laboratory of the Ministry of Justice, Taiwan. Contact Lee Chen, 909 S. Bell St., Chicago IL 60612.

Northern Section Drug Study Group

Ken Fuji

Contra Costa Sheriff's Office
Criminalistics Laboratory
1122 Escobar Street
Martinez CA 94553

A Drug Study Group meeting was held at the Santa Clara County Criminalistics Laboratory on July 2, 1987.

A report was given on the Clandestine Drug Lab Workshop and Drug Study Group meeting held in Sparks in conjunction with the CAC Spring Seminar.

Copies of "Reimbursement to Counties for the Clandestine Laboratory Enforcement Program. Pursuant to Chapter 1029, Statutes of 1986" were distributed. All counties except San Diego, Orange, Los Angeles and Santa Clara may file claims for costs of:

1. Clean-up of hazardous chemicals
2. Prosecution
3. Law Enforcement

(Provided all other resources are expended). Laboratory expenditures for time, materials, analysis, etc., can be claimed under prosecution if your laboratory is a DA's lab or claimed under law enforcement if your laboratory is a Sheriff's or Police Laboratory. The fund includes $355,000 for law enforcement , $50,000 for prosecution, and $250,000 for hazardous chemical clean-up. The maximum amounts per claim are $25,000 for prosecution and $10,000 for Law Enforcement. For additional information contact Jeff Yee, State Controller's Office (916) 322-4479 or ATSS 492-4479.

Cal OSHA will probably adopt the new Federal OSHA regulations regarding hazardous waste operations and emergency response as published in the Federal Register, Volume 51, pages 45654-45675. The public hearing is scheduled for July 23, 1987 in San Diego. Direct inquiries to Steve Jalonsky at (916) 322-3640.

The 1987 Uniform Controlled Substance Act is available. Copies can be obtained from BNE, call Martha Sweet (916) 739-5458

DOJ will implement their Clandestine Laboratory Manual of Instruction and Procedure on July 15, 1987. Copies were distributed.

Super fund money for hazardous waste disposal is accessible through the State Office of Emergency Services. These are the DOHS funds for unplanned clan lab scenes described by Jennifer Tachera at the April 9, 1987 Study Group Meeting. Call the 24 hour hotline: 800-8527550. Tell the operator you wish to access the State Super Fund for a hazardous waste clean-up. Leave your name and a call back number. A State health officer will call back. He can authorize up to $200 using your local hazardous waste hauler. The States contract hauler must be used for bigger cases.

Contra Costa County recently accessed these funds at a PCP lab.

Instructions for Hazardous Categorization - Solids & Liquids were distributed Includes tests for oxidizers, water reactives, pH and combustibility.

CAC and FSF Publications available at CAC Seminars or through John DeHaan

Forensic Science Foundation:

Explosion Investigation, Yallop $25.00

Science Against Crime, Kind/Overman

World List of Laboratories $20.00

Eight Peak Index of MS $65.00

Measurement of Breath Alcohol $13.00

Bibliography on Ethyl Alcohol, Holley head $25.00

Sources and Origins $8.00

Note that these prices are substantially less than those directly offered by the Forensic Science Society.

CAC:

CAC Policy Manual, complete with By-Laws, Officer Duty Statements, CAC Policy Statements, Ethics Enforcement Procdure with Binder: $20.00

Index to CAC Seminars - free to members, $10.00 to non-members.

CAC Abstracts (with index, in a three ring binder with the CAC logo) - $25.00 for members, $50.00 for non-members

Three Ring Binders: Blue & Grey with CAC Logo: $10.00

Announcements

Courses, Meetings and Symposia of Interest

Analytical Methods in Forensic Science

Cal State, Fullerton, will offer a 5 week course review various analytical techniques useful for forensic scientists. The course will be offered on 5 consecutive Monday evenings, beginning November 9.

Microscopy of Explosives

The Midwestern Association of Forensic Scientists will sponsor a workshop on the identification of explosives at Missouri Western College in St. Joseph, Missouri. The dates for this workshop are March 14 through 18, 1988. For information contact

Michael A. Haas
Workshop Chairman
Crime Laboratory Bureau-Madison
4706 University Avenue
Madison WI 53705
(608) 266-2031

Identification and Quantification of Semen, Accelerant Detection, and Archaeology, Anthropology and Odontology of Burial Sites

This series of workshops will be sponsored by the Midwestern Association of Forensic Scientists and (for the Accelerant Detection Workshop) the Bureau of ATF from May 2 through May 6 at the Sheraton Inn in Madison, Wisconsin. For further information, contact

Michael A. Haas
Workshop Chairman
Crime Laboratory Bureau-Madison
4706 University Avenue
Madison WI 53705
(608) 266-2031

International Symposium on the Forensic Aspects of Controlled Substances

This symposium will be co-sponsored by the Federal Bureau of Investigation and the Drug Enforcement Administration. It will be held at the FBI Forensic Science Research and Training Center, Quantico, Virginia, from March 28 through April 1,1988. For further information, contact

Forensic Science Symposium Coordinator
FBI Academy
Quantico, Virginia 22135
(703) 640-1123

Gm Typing

Serological Research Institute will offer a one week course in Gm typing from March 7 to March 11, 1988. For further information, contact

Serological Research Institute
1400 53rd Street
Emeryville CA 94608
(415) 654-7374

Advanced Electrophoresis Workshop

A workshop on advance electrophoresis will last either on or two weeks depending on the needs of the student will be held March 14 through March 25, 1988. Subjects covered include Groups I, II, III and IV. For further information, contact

Serological Research Institute
1400 53rd Street
Emeryville CA 94608
(415) 654-7374

Systematic Analysis of Low Explosives

The Bureau of Alcohol, Tobacco and Firearms will conduct a course in the Systematic Analysis of Low Explosives in 1988 for state and local forensic chemists. The class in scheduled for June 13- 17, 1988. Enrollment is limited to ten students.

The one week course, conducted at ATF's National Laboratory Center (NLC) in Rockville, MD, will emphasize practical skills in the recovery and identification of low explosives and their residues. Students will learn to examine a case from beginning to end. Material covered will include:

- recognizing low explosives based on blast damage and explosive effects.
- gathering and documenting evidence at a bomb crime scene
- describing the chemical composition of low explosives and post-blast residues
-microscopically recognizing explosives in explosion debris
-analyzing bomb debris chemically (using extraction procedures, spot tests, organic and inorganic thin layer chromatography, and infrared spectrophotometry)
-developing an appropriate chemical analysis scheme for many of the low explosives frequently encountered
-recognizing post-blast bomb components

The course is designed for state and local forensic scientists who perform or will be performing laboratory analysis of explosive debris. Since examiner experience varies widely each selected applicant will be sent a self-test and reading material on explosives and explosions. The self test will not be lengthy. It must be returned to the ATF National Laboratory Center by a specified date. Failure to return the test will result in the applicant forfeiting his or her class slot.

There will be no tuition, registration, or course material fee. The ATF Laboratory will arrange a group rate (approximately $66/night) for all selected students at a hotel convenient to the NLC. All transportation, lodging, and per diem costs must be borne by the local department or individual. The U.S. Government per diem rate for the Washington, DC metropolitan area is $112/day. Attendees should budget accordingly.

Those persons interested in applying for the school can obtain an application by contacting Rick Strobel at ATF National Laboratory Center , 1401 Research Boulevard, Rockville, MD 20 850 202 294- 0420

Second Symposium on Recent Advances In Arson Analysis and Detection

Hosted by the Bureau of Alcohol, Tobacco and Firearms Laboratories
February 15-46 1988
Philadelphia, PA

Background

During the past five years ATF has trained approximately 250 chemists in its Arson Accelerant Detection Course. In 1985, we hosted the First Arson Symposium in conjunction with the American Academy of Forensic Sciences in Las Vegas. The Symposium was well received. There were approximately 180 attendees who took part n the arson information exchange.

ATF is sponsoring a Second Symposium to continue the dialog in the arson area. Over the last 3 years there have been advances in the accelerant detection and analysis area. Some of the topics to be covered include:

- New evidence packaging guidelines
- GC/MS Applications
Lacquer Thinners
-Insecticide Carriers
-Final Report on Accelerant Detection Dogs
-Dupont Plaza Fire - San Juan, Puerto Rico

The workshop has been expanded to 1 1/2 days. It will be held in conjunction with the American Academy of Forensic Sciences Meeting in Philadelphia Monday, February 15, 1988 (1p.m. - 5p.m.) and Tuesday, February 16, 1988 (9a.m. - 5 p.m.)

Call For Papers

Those persons interested in presenting papers at the Symposium should contact Dr. Mary Lou Fultz, Program Chairman at the addresss or telephone number listed below. Any paper dealing with techniuques applied to arson analysis or detection is welcome.

Attendance

Registration will be handled by the American Academy of Forensic Sciences, (AAFS), 225 S. Academy Boulevard, Colorado Springs, CO 80910 [(301) 596-6006]. You can register for the Symposium without registering for the AAFS Meeting. A $100 registration fee will be charged, to cover costs.

GUIDELINES FOR THE CAC OUTSTANDING PRESENTATION AWARD

Bruce Fukayama

Chairman, Awards Committee

I. Purpose of the CAC Outstanding Presentation Award

A. To promote the exchange of information in Forensic Science

B. To promote techniques that are useful in the presentation of courtroom testimony

C. To recognize outstanding presentations at CAC Seminars.

II. Subject Matter

A. Laboratory research

B. Case study

C. Legal or scientific information that would be of interest to Forensic Science

III. The papers will be judged by the following criteria

A. Content

a. Scientific/Technical merit

1. Originality

2. Relevance to forensic problems

B. Quality

1. Clarity of the purpose of the paper

2. Continuity of the format and presentation of the paper

3. Effective transfer of information

a. Verbal skills

b. Handouts

c. Audio Visual aids

d. Skill in handling questions from the audience

C. Personal initiative in the development of the project.

D. Comparison of the intention of the presentation and the goals reached by the presentation.

E. Timeliness

1. Abstract submitted by the deadline

2. Presentation reasonably given within the time limits.

F. Credibility of the Speaker

1. Personal appearance

2. Demeanor

A good presentation should answer the following questions;

1. What is the purpose of the presentation?
2. What is the applicability to Forensic Science?
3. Did the results of the project lead to any particular conclusion or conclusions?
4. Did the speaker anticipate logical, common sense, relevant questions and issues during the research/presentation?
5. Was the audience's interest held by the speaker?

SUGGESTIONS ON THE PREPARING FOR THE PRESENTATION

CONTENT (50 %)

SPEECH DEVELOPMENT is the way the speaker puts ideas together so the audience can understand them. The speech is structured around a purpose, and this structure must include an opening, body, and conclusion. A good speech immediately engages the audiences attention and then moves forward toward a significant conclusion. This development of the speech structure is supported by relevant examples and illustrations, facts and figures, delivered with such smoothness that they blend into the framework of the speech to present the audience with a unified whole.

EFFECTIVENESS is measured in part by the audience's reception of the speech, but a large part is your subjective judgment of how the speech came across. You should ask yourself such questions as "Was I directly to that purpose? "Was the audience's interest held by the speaker?"

SPEECH VALUE justifies the act of speaking. The speaker has a responsibility to say something meaningful

and original to the audience. The listeners should feel the speaker has made a contribution to their thinking. The ideas should be important ones, although this does not preclude a humorous presentation of them.

DELIVERY (30%)

PHYSICAL presentation of a speech carries part of the responsibility for effective communications. The speaker's appearance should reinforce the speech, whether profound, sad, humorous, instructional. Body language should support points though gestures, expressions, and body positioning.

VOICE is the sound that carries the message. It should be flexible, moving from one pitch level to another for emphasis, and would have a variety of rate and volume. A good voice can be clearly heard and the words easily understood.

MANNER is the indirect revelation of the speaker's real self as the speech is delivered. The speaker should speak with enthusiasm and assurance, showing interest in the audience and confidence in their reactions.

LANGUAGE (20%)

APPROPRIATENESS of language refers to the choice of words that relate to the speech purpose and to the particular audience hearing the speech Language should promote clear understanding of thoughts and should fit the occasion precisely.

CORRECTNESS of language insures that attention will be directed toward what the speaker says, not how it is said. Proper use of grammar and correct pronunciation will show that the speaker is the master of the words being used.

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 ATF). 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 or Grady Goldman.

Sweatshirts- various colors (50/50 blend): $10.00

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

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

Golf Shirts (Hanes Cotton-Polyester, short sleeve): $15.50 Available in: black burgundy, slate grey, eccru, navy, kelly green, red, yellow, light blue, siler and white

Sweaters (long-sleeve acrylic pullovers): $17.50

Vest (sleeveless acrylic pullovers: $16.50

Sweaters or vests available in: black, brown, burgundy, tan (camel), light blue, red and navy. (100% Orlon available at extra cost)

Tote bags (natural canvas tweed): $9.00

Forensic Science Society

Ties: Embroidered FSS motif: $6.50 (navy brown, burgundy) Woven multiple scale/micro- scope motif: $.500 (burgundy)

Plaques: $20.00

Pin Badges: $3.00

THE EXAMINATION OF SUSPECT BULLET HOLES AND RELATED IMPRESSIONS, THE COLLECTION OF BULLETS AT CRIME SCENES AND THE EVALUATION OF BB ANGLE OF INCIDENCE ON GLASS

John Murdock

Grady Goldman

Richard Schorr

Criminalists, Contra Costa County Sheriff-Coroner Department
Criminalistics Laboratory Division
1122 Escobar Street
Martinez, Ca 94553

(Presented at the 18th Annual AFTE Training Seminar, June 15-19, 1987, Seattle, Washington)

I. General Examination of Suspected Holes or Impressions (with hand lens and flashlight if needed)

A. Shape

1. Round - made by entire bullet during true flight path
2. True Diameter? - (wood, etc., may close up after being forced apart)
3. Irregular - a portion of bullet core or jacket may have passed through
4. Regular - (but not round) -
   a. rectangular - common screwdriver or phillips head
   b. oval - from pulled nails
   c. wedge shape - chisel tips/sides
   d. countersunk - from screws, carriage bolts, or nail heads
5. Bulged - indicative of bullet impact on opposite side.

B. Associated Deposits/Impressions

1. Generally dark debris, GSR, lubricant, ricochet acquired rub off
2. Grey metal resembling bullet lead
3. Paint transferred from tools
4. Copper or golden alloy color transfer from bullet coatings or jackets
5. Body fluids from body previously passed through
   a. Consider presumptive blood test(s) on part of margins prior to contact with any other material
6. Black powder, etc., from exploding tip of devastator bullets (looks like a contact shot)
7. Plastic Plug or bubble over snake shot (may be orange/blue color plastic present)
8. Stun bag (orange cloth with pellets inside)
9. Consider plastic or wooden bullets - come in various colors

C. Examination of Nearby Damage

1. Wood - any longitudinal splits suggestive of a prying force and not a localized bullet impact
2. Sabot - any star or petal shaped marks present (see JFS Vol 29, #1, Jan 1984, pp 16-168)
3. Nearby hammer head, claw or crowbar claw impressions- may be patterned or smooth

D. Examine Hole Impressions and Determine if Damage is Recent

1. Is there fresh paint, wood, masonry, or plaster fragments below?

2. Is the wood discolored or weathered in the area of damage? If so, it's probably old damage

3. Any corrosion present?

a. Is there corrosion where surface has been damaged? How quickly would corrosion form in this location? Consider testing under similar conditions and photographing results

II. Recording Probable Bullet Holes or Impressions

A. Photography - (a macro lens is a must here)

1. General location in room, fence, car, etc.

2. Midrange

3. Closeups -

a. with scale

b. without scale

c. include ID plate (initials, date, arrow of orientation [usually up], number of specific hole, lab number, etc.)

d. try and show any unusual features of hole, such as angularity or directionality

B. Sketching

1. Overall diagram showing:

a. position of holes relative to scene generally

b. most probable position of shooter based on indicated flight paths

2. Detailed sketch showing:

a. location of each hole carefully measured and described

b. size of each hole or impression

III. Detailed Examination of Probable Bullet Holes or Impressions

A. Examine margins of hole/impression

1. Are any probable lead or copper wipes present

2. Decide whether or not to remove and collect any small lead or copper fragments (should do this if entire hole or impression will not be collected)

B. Look at back side of hole

1. Any signs of exit present

2. Any residue around probable exit margins

C. Look for secondary impact sites

1. Check whatever could be in line, such as furniture, cars, fences, houses next door (be sure and check cars before they are driven away. Have any been driven away already?)

D. Look for directionality

1. Is the hole pushed in or splintered out, making apparent direction evident?

2. Does it appear likely that a bullet could have been fired from the indicated direction? (ex. from inside of a car trunk or some other confined or unusual location/position)

IV. Collecting Trace Evidence from Margins and Track: (when hole/impression cannot be collected, when trace evidence may be dislodged easily, or when holes will be probed)

A. Use fine tipped forceps to remove any large fragments (or dislodge with a splintered wooden swab shaft and knock into a paper fold and transfer to a screw top glass vial - label accordingly)

B. Use a dry swab to rub deposits and note extent of transfer. If all has apparently transferred, stop here (package in plastic vial)

C. Consider using a sharp scalpel blade to dislodge thin deposits or material resembling bullet metal

D. Hole margins may be processed for gunshot discharge residue using:

1. SEM disks (use these first if used at all)

2. NAA/AA nitric acid swabs (these may also be used on bullet track margins)

3. Be sure to record extent of radial distribution if any visible deposits are present.

E. If a presumptive blood test on a portion of track is positive, collect remainder with a damp swab and examine margins carefully for blood/tissue. Be careful not to twirl swab while collecting. Collect so as to concentrate whatever blood is present on one portion of swab.

F. Consider using presumptive field color tests for metal from bullet surfaces (see JFS, Vol 29, #1, Jan 1984, pp 169-176 and JFS, Vol 32, #3, May 1987, pp 802-805)

G. Tape lift bullet hole when appropriate for surface

1. Metal, walls, glass, skin, etc., can often lift many fragments of gunpowder

2. Tape at least 1 square foot if considering GSR, including rhodizonate. Best to test actual surface or else make a filter paper transfer. Taping with good adhesive material is often very effective.@OUTLINE 3 =

V. Mikrosil Cast of Bullet Hole/Impression when Appropriate

A. May record Land and Groove impressions very well, especially if hole is in metal. However, other media, even dry wall plaster, can record these, especially if bullet key holes

B. May identify compression detail from ricochet site (AFTE Vol 7, #2, July 1975, pp 28-32)

C. Include scratched ID date or same information on lead foil with sticky back-to be cast along with hole/impression

D. Be sure to remove trace evidence (carefully) first

VI. The Examination of Possible Ricochet Sites

A. Same considerations as bullet holes regarding

1. General examination and recording

2. Associated deposits of lead, copper-jacket, GSR, tissue, etc.

3. Examine for other damage nearby

4. Can cast with Mikrosil and compare with projectiles

B. It is very important to collect

1. Ricochet site after casting in order to test for bullet components, especially if none were evident

2. Standards of paint, etc., from every suspected ricochet surface - a bullet will often have a layer by layer history of surfaces it has struck

C. Determining direction of bullet. This works especially well on painted surfaces (JFSS Vol 11, #1, Jan 1971, pp 55-61)

1. Dust immediate area around ricochet site

2. Tape lift - be sure and include ID data and arrows of orientation

3. Fracture pattern is usually evident - even a very small one can be very useful

VII. Probing Bullet Holes - (assuming that track and margins have been processed for trace evidence)

A. Push a suitable clean and straight probe of appropriate caliber gently through the bullet track

1. Be careful not to disturb the general shape of hole or hole margins if collection of the hole is anticipated.

B. Sight along probe to most likely shooter positions. Record these on a sketch - take a series of normal lens photographs from them. See below for stringing probes

C. Photograph probe(s) in place from at least 3 right angles

1. Use a large protractor to measure horizontal and vertical angles and then photograph the protractor in place with probes. If this cannot be done, measure the angles carefully so the angles can be reconstructed mathematically

2. If wall, struck surfaces, etc., are not plumb, either measure angles from a plumb line from the impact site or measure angularity of impacted surface; or both

D. String probes when needed and photograph these apparent bullet paths. Designate the most likely shooter position(s) on a sketch. Take normal lens photographs from these positions

E. Fiberglass tent stakes are quite suitable for probes. They are available in several common caliber compatible diameters. These may be taped into what seems to be the best position. Connectors allow you to extend the probe length. They can also be thoroughly cleaned after use

VIII. Flight Path Determination

A. The longer the bullet track, the more likely it is that a bullet flight path can be determined. If the bullet is uninterrupted, the flight path shown will be true. If two tracks or holes are separated by some intervening space, you have an even more reliable situation

B. When the track is short or when a bullet keyholes, it is often only possible to give an estimate of minimum and maximum horizontal and vertical angles, resulting in an ever increasing cone of possible flight path origins. All you can do is to give the most accurate estimate based upon the information available at the scene.

C. Ballistics considerations and related computer programs:

1. A lot of work in this area has been done by

Luke Haag and Bill Morris (see AFTE Roster)

2. This is an important area but beyond the scope of the present paper

IX. Preservation of Bullet Holes/Impressions

A. Collect if possible

1. Remove hole with surrounding surface - saw or cut carefully and place ID data and arrow of orientation on surface.

2. Consider taking extra surface material in case any tests have to be done later

3. If not collected (or if probed), collect trace evidence from margins and track as indicated in section IV

X. Collection of Projectiles

A. Consider the need to process surfaces for blood before you pick them or it up. You may have some dried blood on your fingers and if you get a positive presumptive test for blood on a bullet with no visible stains, you won't know for sure the origin of the substance responsible for positive results

B. Whenever you can scoop a bullet into an envelope or box with a paper (latent fingerprint card) fold, do so. A stereo microscopic examination later with clean hands may reveal all sorts of adhering debris, (paint, fiber, bone, blood, concrete, sheetrock, etc.), fabric impressions and impressions from ricochet site(s)

C. Place identification marks (initials, item #, Lab #) on bullet surface after stereo examination is done in the lab - in consultation with one doing firearms work up on evidence. Cartridge cases and bullets must have identification marks placed on suitable surfaces. Only in rare instances are they not marked. This is only when the evidence is very small and the marks would compromise its value

D. Collect bullet(s) with clean or gloved fingers if possible. You can also use rubber sheathed wide jaw forceps. Be sure they are clean! If forceps are used, clean them after each item is collected

E. If you must cut the bullet out, remove surrounding material carefully so you do not damage bullet

F. Remember to take exemplar samples from each surface the bullet passed through

G. Do not clean or remove materials from bullet surfaces, trace evidence should be preserved as is

H. Place it in a cardboard box with tissue, mark only the exterior of the box and then tape seal or place in a paper bag or envelope that can be folded over and fastened closed

I. If you will be doing the firearms examination you will probably be able to mark the firearms evidence during the examination(s) during inventory.

XI. Shotgun Shell Pellet Holes

A. General Examination

1. Count the total number

a. may divide into sectors for ease in counting. The number of pellets may be compared to load designation on shotgun shells or packages

2. Recover a representative sample (which may be quite a few especially since shot sizes may be mixed in one load) from birdshot patterns and all from buckshot patterns (in 00B - one pellet may miss and the 9th or 12th hole may be a .38 special or .357 mag caliber bullet). Collect in same way from a body

3. Associated shotshell components

a. Look for impact sites of power pistons, shot columns cards, wads, etc., and collect all fired components. (Some are light and may be moved by wind)

4. Size of pattern

a. Measure X and Y axis and be sure to record angle of incidence correctly with respect to X & Y axis. Wood swab sticks can be used to probe birdshot holes

B. Gunshot Residue, Recording and Flight Path Determination

1. The same guidelines apply here that were stated for holes

2. More probes have to be used

3. Black or white plastic shot cushioning is used in some buckshot cartridges. It survives the blast and may be found if the impact site is close enough to the muzzle (refer to AFTE Vol. 16, No. 3, July 1984 pp 132-134)

XII. BB Angle of Incidence Using Single Strength Window Glass

A. Collection of evidence at scenes

1. Photograph fracture patterns in place (use polaroid to be sure and have a record)

2. Dust with fingerprint powder and lift fracture pattern

3. Tape surface with clear contact paper or fingerprint tape to prevent glass from falling out if you are going to collect it

4. Remove glass

B. Recording of fracture pattern in Laboratory

1. Photograph over a light box with high contrast or other suitable film

C. Determination of impact angles and direction of travel

1. Test fire at various angles - be sure and use glass of similar thickness and properties

2. Photograph test fired pattern 3. Observe:

a. the shape of the hole - round or elliptical

b. symmetry of the fracture lines - the fracture tends to point away from the direction of travel

3. Compare the questioned hole to the test firings to see which agrees best

a. shape of hole - there is a symmetrical ellipse up to about 70x with the length of the ellipse becoming shorter as the angle of impact increases to 90x. The impact sites at 80x and 90x are round

b. fracture patterns

1. impact angles at 10x, 20x, 30x and 40x have elongated fracture lines pointing away from the direction of impact

2. impact angles of 50x, 60x and 70x have shorter ellipses and shorter fracture lines but they still have indicators of the direction of travel

3. impact angles of 80x to 90x have symmetrical fracture lines making angle determinations less precise

D. Extension of Technique to Firearms: Preliminary work with .22 cal LR ammunition indicates that these fracture patterns parallel those made with BB's

GENERAL REFERENCES:

1. Silliman, Capt. James R. "Crime Scene Search: Evidence at the Scene of a Shotgun Shooting", AFTE Journal, Vol. 9, No. 2, July 1977. pp 111-119

2. Haag, Lucien C. "Firearms Evidence for Police Officers" 2nd ed. 1984

3. Laurent, S "Precautions to be Taken by The First Investigators to Arrive at the Scene of a Crime Involving Firearms", International Criminal Police Review, No. 312, Nov, 1977, pp 274-277

4. Gradwohl's Legal Medicine, 2nd Ed. ed. by Francis E. Camps, 1968, section entitled "Problems of Investigating a Shooting Scene" pp 365-368

MAAFS Spring Meeting Abstracts

The following abstracts are of papers that were presented at the MAAFS Spring meeting at Richmond, Virginia

Forensic Hair Comparison Testimony - A Historical Review

Presley, Lawrence A.; Hensley, Kathryn W.; FBI Laboratory, Washington, DC

In New York in the 1850's and animal hair identification by a microscopist resulted in a confession and subsequent conviction in a murder case. One of the first reported forensic hair testimonies in Germany was by Rudolf Virchow in 1861. In 1882 a Wisconsin appellate court ordered a new trial in a case in which a medical doctor did not use a microscope to make a hair comparison and the testimony was not allowed.

Current expert testimony regarding hair comparisons has not changed significantly from testimony given a hundred years ago.

Forensic Science Contributions to Identification of Unidentified Persons

Fierro, Marcella F., MD; Office of the Chief Medical Examiner, Central District, Commonwealth of Virginia

The identification of unknown persons is a multidisciplinary task. The unidentified person may be dead, or unable or unwilling to reveal his identity, thus requiring aggressive development of identification features by forensic pathologists, dentists, radiologists, and forensic scientists. Forensic serology, trace evidence examinations, fingerprint examination, anthropology, toxicology, and other forensic sciences contribute to the discovery of identification features suitable for entry into the FBI-NCIC Unidentified Person and Missing Person Files for computer comparison and matching.

Physically Reconstructing the Visage from the Skull

Goyne, Thomas E.W.; Virginia Bureau of Forensic Science

The technique of physically reconstructing the visage from the skull has been used successfully in assisting in the identification of the unknown dead. This presentation will discuss various aspects of the methodology as it applies to forensic , archaeologic, and futuristics cases. In addition, a variant to the more scientific approach will be shown when used to develop a three dimensional view of the Man in the Turin Shroud.

Testing Procedures Utilized by the Navy Drug Screening Lab

Mell, Leroy D., Jr., PhD; LCDR, MSC, USN

The mission of the Navy Drug Screening Laboratory, Norfolf, Virginia, is to provide chemical analysis of urine specimens of active duty Navy and Marine Corps personnel, under forensic conditions, to determine the presence or absence of drugs of abuse. The drug classes identified (including metabolites as required) are marijuana, amphetamines, barbiturates, opiates, PCP, and cocaine.

The laboratory routinely analyzes 32,000 to 35,000 samples per month for each of the above drugs. Initial screening of all samples is accomplished using RIA at specified cutoff levels for each drug. Samples which screen positive are confirmed as positive by GC/MS.

Urine Screening-Legal Aspects

Powell, Cleo E.; Senior Assistant Attorney General for Equal Employment and Personal, Commonwealth of Virginia

A discussion on the issues of urine testing, focusing on the legal implications that may result from testing public employees and the various laws that may be affected, with an emphasis on recent case law.

VICAP - Violent Crime Apprehension Program

FBI Behavioral Science Unit, Quantico, Virginia

The FBI's criminal profiling service, officially christened the National Center for the Analysis of Violent Crime in June 1985, has evolved from informal beginnings in the late 1960s to become the world's clearinghouse for the pursuit and capture of irrational, abnormal offenders-the most difficult of all criminals to apprehend. Working largely from police reports, autopsies, photos, and the like- the center's profilers rarely visit the scene of the crime-they ferret out strictly behavioral clues to the identities of the perpetrators and produce multipage, typewritten analyses, often in startling clarity and detail.

"Clickers" - Do They Interfere with Intoxilyzer Readings?

Wilkinson, Donald R., PhD; Bennett, Joyce; Zerrad, Elysse; Gondolfo, Michael; Department of Chemistry, Delaware State College

Authorities from Louisiana believed that "Clickers" (marijuana soaked in methanol and formaldehyde), when smoked before sampling a subject's breath for blood alcohol content, substantially changed the reading giving a high BAC value. This study was carried out to determine if "Clickers" truly affect the BAC readings on the Intoxilyzer Model 5000 a possible answer to this question was obtained.

Training the Trainer

Cereni, Carolyn; Leser, Michael; DEA Mid-Atlantic Laboratory, Washington, DC

The Public's awareness of the drug problem in the US has rapidly increased due to the publicity generated by the involvement of many public figures with drugs. The law enforcement community has been deluged with urgent requests for information on the hazards and safe handling of drugs and related substances by their officers on the street. Federal, state and local police have turned to the forensic science community to seek up-to-date information for their law enforcement personnel. Responding quickly with the requested information and training has challenged forensic scientists to develop programs on pertinent topics.

This paper addresses the responses which the Mid-Atlantic Laboratory of DEA has generated to answer this need for training.

Infrared Microspectroscopy: A New Technology for Evidence Analysis

Reffner, John A., PhD; of Spectra-Tech, Inc.

Uniting light microscopy with Fourier Transform Infrared (FT-IR) spectroscopy provides the forensic scientist a new analytical technology for evaluating trace evidence. Microscopic examination often detects traces of materials that have evidential value only when the microscopist recognizes the object. With the IR-PLAN microscope combined with an FT-IR spectrometer, obtaining infrared absorption spectra of microscopic samples is a practical reality. FT-IR microspectrometry gives a new dimension to trace evidence evaluation.

FT-IR microspectrometry is not limited to traditional trace evidence analysis. The analytical capabilities of infrared spectroscopy combined with the ability to see and define microscopic samples for analysis are useful in most traditional forensic analyses. Drugs are quickly analyzed without the need for chemical separations. Explosives and residues can be readily identified. In a recent case, a charred fabric was shown to have remnants of a polyester polymer matching a known source. Since the polyester fibers had melted they could not be identified by standard methods.

The technical advances in the instrumentation for FT-IR microspectrometry will be demonstrated by examples of evidence evaluations.

Identification of DNA RFLP's: Casework Applications for the Analysis of Bloodstains, Semen Stains, & Tissue Specimens

Giusti, Alan; Baird, Michael; Shaler, Robert C.; Lifecodes Corporation and McNally, Lorah; John Jay College of Criminal Justice.

Since DNA forms the genetic basis of life, its potential as a comparative tool with unprecedented discriminatory power in forensic serology is gaining popularity. The identification of Restriction Fragment Length Polymorphisms (RFLPs) using specific DNA probes from restriction endonuclease digests provides the basis of a DNA comparative test with direct application to crimes of violence and paternity disputes.

Several casework examples which have been examined for RFLP's will be discussed to illustrate the quality and stability of DNA available in actual casework specimens. Specific examples will be chosen to detail bloodstains, semen stains, and tissue specimens.

An Evaluation of the New Internal Calibration System Used in the CMI Intoxilyzer Model 5000

Bennet, Joyce; Wilkinson, Donald R., PhD; Department of Chemistry, Delaware State College

The Intoxilyzer Model 5000 is calibrated periodically to insure accuracy and precision. A recent addition to the Model 5000 is an automated internal standard option. This paper discusses the reproducibility of the internal calibration system, the effect of ambient air-alcohol levels levels on the system and whether or not the system will determine if the instrument is in calibration.

Asbestos Monitoring in the University Environment

McLane, Ann, Safety and Security Office, and Towe, Walter F., Dept. of Forensic Services, The George Washington University

As a major urban university The George Washington University owns buildings with a wide range of ages. Many of these buildings were constructed or renovated during the period when asbestiform minerals were used as insulation and as strengtheners. The University has instituted an intensive program of asbestos monitoring to deal with hazards arising from damaged insulation and from building repairs and renovation. This paper will discuss the development of the University's asbestos monitoring program, the methods used for asbestos analysis, asbestos abatement procedures, and, and the documentation of the location of different types of asbestos within University buildings. The authors also discuss recent statutes and court rulings concerning the sale or demolition of asbestos-containing buildings.

False Conclusions Derived from Improper Data Interpretation

Wilkinson, Donald R., PhD; Gondolfo, Michael; Robinson, Wade; Zerrad, Elysse; Bennet, Joyce; Department of Chemistry, Delaware State College

The dangers of bias in the interpretation of scientific data is discussed. As an illustration of such bias, data produced by a state forensic laboratory was reanalyzed and new conclusions drawn. The results indicate either careless research or bias, either resulting in incorrect conclusions.

GC/FTIR in Forensic Drug Analysis

Price, Bill; Hewlet Packard Company, Atlanta, Georgia

GC/IR data can be extremely useful in drug analysis especially when used in conjunction with GC/MS data from the same sample. The features of theinfrared detector for GC will be presented along with forensic application of the new combined GC/IR/MS system.