This is my last “Letter from the President.” I would like to take this opportunity to thank all of you who gave your time and energy to the Association. It is people like you who have made this year a very gratifying and rewarding one for me. To my fellow members of the Board of Directors, this year’s committee chairs, and all of you who worked on the various committee, a very special thank you. You were always available when there was work to be done.

For me the most gratifying achievement of the CAC this year will be the upcoming classes subsidized by the McLaughlin Endowment. For years I have wished that the CAC could take a more active role in providing training to our members. Thanks to the generous gift of Reed and Virginia McLaughlin, we are now able to do just that. This is a membership benefit that can only get better.

One of my goals for this year was to recruit new faces, especially among our newer members, into the cadre of volunteers who work for the association. Unfortunately, I have had only limited success. I strongly encourage all of you who have not been active participants to seriously become one. The future of our profession will be greatly influenced by input from professional organizations such as the CAC. The effectiveness of this input will be directly proportional to members’ willingness to give of their time and energy.

My year as president will end in May at the Spring Seminar at Bass Lake. Hopefully, many of you will be able to attend and join me in what looks like a very interesting program with the locale as an added attraction. I’ll try not to forget to announce the location of the hospitality suite this time!

Carole

Roger S. Greene, 1908 - 1963, is featured in remarks by Jack Cadman which begin on page 8. Archive photo courtesy of John De Haan.

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Special Supplement:
Board of Director’s Meeting
Business Meeting
Fall ’91 Abstracts
CALIFORNIA ASSOCIATION OF TOXICOLOGISTS (CAT)
May 1-2, 1992

The California Association of Toxicologists is pleased to announce a meeting of significant interest to toxicologists. In an effort to stimulate on-the-job training of toxicologists, the CAT is producing, in association with CRC Press, a comprehensive toxicology training manual. The effort, well underway, is being supported by a team of toxicology experts nationwide. The publication in progress will be introduced to the laboratory community, and other interested parties, by the authors, editors and education experts at a two day colloquium devoted entirely to presentations and discussions about training, education and related topics. Please join us in this important dialogue. The CAT

cont'd on next page
Meetings, cont'd

Toxicology Training Colloquium, hosted by Irvine Sunshine, Ph.D., will be held at the Le Meridien Hotel in Newport Beach, California. For further information, please contact: Susan J. Knight, CAT Vice President, 18457 Santa Carlotta, Fountain Valley, CA 92708; phone/fax (714) 965-9854.

CALIFORNIA ASSOCIATION OF CRIMINALISTS
May 7-9, 1992

The Semi-Annual Seminar of the California Association of Criminalists will be held at the Pines Resort at Bass Lake in Madera County. It is being hosted by the Department of Justice, Fresno Regional Laboratory. For further information, please contact: Gary Corinier, Department of Justice, 6014 North Cedar, Fresno, CA 93710 (209) 278-2982.

NORTHWEST ASSOCIATION OF FORENSIC SCIENTISTS
May 18-22, 1992

The Semi-Annual Seminar of the Northwest Association of Forensic Scientists will be held at the Nugget Hotel/Casino in Sparks, Nevada, which is just minutes from the Reno Airport. The program will include two days of workshops in specialized areas of criminalistics and two days of technical presentations. For further information, please contact: Floyd Whiting, Washoe County Sheriff's Crime Lab, 911 Parr Blvd., Reno, NV 89512-1000 (702) 328-2800.

CANADIAN SOCIETY OF FORENSIC SCIENCE
August 20-25, 1992

The Annual Seminar of the Canadian Society of Forensic Science will be held at the Citadel Inn in Halifax, Nova Scotia. The theme of the conference is “Truth through Science and Integrity”. The conference will include scientific sessions and a poster session. Workshops are also being planned in some of the following areas: DNA, Fire Investigation, Document Examination, Expert Witness Testimony, Drugs and Driving and Laboratory Safety. For further information, please contact: Fredricka Monti, Executive Secretary, CSFS, Suite 215 - 2660 Southvale Crescent, Ottawa, Ontario, CANADA K1B 4W5 (613) 731-2096.

CLANDESTINE LABORATORY INVESTIGATING CHEMISTS
September 9-12, 1992

The Second Annual Seminar of the Clandestine Laboratory Investigating Chemists will be held at the Stockyards Hotel in Fort Worth, Texas. It is being hosted by Forensic Consultant Services in Fort Worth. For further information, please contact: Max Courtney, Forensic Consultant Services, PO Box 11668, Fort Worth, TX 76100 (817) 670-1710.

SOUTHWESTERN ASSOCIATION OF FORENSIC SCIENTISTS
October 27-30, 1992

The Fall 1992 Meeting of the Southwestern Association of Forensic Scientists will be held in Estes Park, Colorado. It is being hosted by the Colorado Bureau of Investigation. Program will include guest speaker and instructor, Dr. Walter McCrone. For further information, please contact: James Crippin, Colorado Bureau of Investigation, 3416 N. Elizabeth, Pueblo, CO 81001 (719) 542-1133.

4TH INDO-PACIFIC CONGRESS ON LEGAL MEDICINE AND FORENSIC SCIENCES
November 2-6, 1992

The Forensic Science Association of Thailand in cooperation with INDO-PACIFIC ASSOCIATION ON LEGAL MEDICINE AND FORENSIC SCIENCE (INPALMS) is holding the 4th INDO-PACIFIC CONGRESS ON LEGAL MEDICINE AND FORENSIC SCIENCE in Bangkok at the Hyatt Central Plaza Hotel. For further information, please contact: LEGALMEDSCI92, Institute of Forensic Medicine, Surgeon-General Office, The Royal Thai Police Department, Henry Dunant Road, Bangkok 10330, Thailand Phone: 251-2925-7, 2527115 Fax: (66-2) 2365219, 2377333.

MIDWESTERN ASSOCIATION OF FORENSIC SCIENTISTS
October 9-14, 1993

MWAFS will be holding its 22nd Annual Fall Meeting in Madison, Wisconsin at the Holiday Inn-Southeast, October 9-14, 1993.

Contact: Michael A. Haas
Local Arrangements Chairman
State Crime Laboratory - Wausau
7100 Stewart Avenue
Wausau, WI 54401-9305
Phone: (715) 845-8626
FAX: (715) 848-5833.
Report on Two Early United States Firearms Identification Cases

Paul M. Dougherty

In a recent historical article [1] dealing with the early history of firearms identification, it was reported that there were no U.S. contributions until the work of Goddard and his team in the 1920's. Notable contributions were made to firearms identification, which have remained unknown to many firearms examiners before Goddard. Only brief reference to this work is made by Hatcher, Jury and Weller [2]. Even in this book little detail is given about the early papers.

The first work was published by Hall [3] in 1900. It was read at a meeting of the Medical Association of Central New York in October 1899. It is worth detailed discussion here because of the unavailability of the reference to firearms examiners. Hall describes a systematic examination of fired projectiles, determination of their class characteristics, the characteristics of projectiles as they come from the factory, and the fact that the projectiles may be identified as to manufacturer by the base and cannels.

He recognized that use or misuse could leave marks on the fired projectiles, thus enabling identification.

**Inspect the rifling and note its peculiarities, and whether there has been any alteration or defacement due to rust, or injury. Sometimes the end of the barrel may become battered, and defacement of the rifling result in such a way that a discharged bullet will show markings which have been caused by these injuries.** [3]

In the most interesting aspect of this paper, Dr. Hall discusses a murder case and the "mortar" bullet.

"The bullet was badly bruised and disfigured, but the rifling of the weapon had left some markings which conclusively proved that the defendant's pistol was the one from which it had been fired." [3]

While it is uncertain what these markings were, it is clear that Dr. Hall believed he was able to identify the projectiles with the weapon that fired them, based on characteristics resulting from usage.

The next significant development not men-

tioned by Thomas [1] was the incident at Brownsville, Texas, which was to become famous as the "Affray at Brownsville."

On the night of August 13th and 14th, 1906, a riot occurred in which the town of Brownsville, Texas, was "shot up" and one civilian was killed by soldiers from the 25th Infantry. The resulting outcry led to an extensive Senate investigation of the incident [4]. As a part of this investigation, First Lieutenant Wilford J. Hawkins of the Ordnance Department, Springfield Armory, Massachusetts and Mr. G. A. Spooner, Inspector of Gauges used in the manufacture of rifles at the Armory, were given the task of examining the rifles of four infantry companies along with the fired and unfired ammunition, which were picked up on a street of Brownsville the morning after the shooting. The results of these investigations were embodied in a report which was filed with the Senate Committee [4] on the 15th of February 1907. Thirty-three fired cartridge cases, along with six unfired cartridges, were received at the Springfield Armory. The cartridge cases were from two different lots of cartridges, one group being manufactured by Frankfort Arsenal (FA) and the other group by Union Metallic Cartridge Co. (UMC). Examinations of these cartridge case heads and primers were carried out by the use of a jeweler's eye glass, two to five power, aided by the use of a Bausch and Lomb microscope of unknown power or type. The cartridge cases were grouped into four groups each, representing four different rifles, with the fifth group for unfired cartridges. The report does not have photographs of the cartridge case heads but rather contains a rough drawing of a representative cartridge case head from each of the four groups. Along with these drawings (Figs. 1, 2), are the verbatim comments on each of the group of cartridges:

**Group 1:**

a. Large flat tilting mark in bottom of striker imprint, of peculiar pentagonal shape.

b. Two similar cuts in upper right-hand quadrant of striker imprint.

c. Two circumferential marks in the upper left-hand quadrant.

d. Scribe mark on base of cartridge case from ejector cut burr in bolthead. This scribe mark is deep and well defined in shape.

e. Shape of upper and lower corners of first shoulder of cartridge case.

f. Reamer markings on first shoulder of cartridge case.

**Group 2:**

**Group 3:**

**Group 4:**

**Group 5:**

**Group 6:**
Group II:
- Small flat tilt mark in bottom of striker imprint, of nearly circular shape.
- One rather marked vertical cut at left of tilt mark and striker imprint.
- Two circumferential markings in upper left-hand quadrant.
- Shape of rear corner of first shoulder.
- Ragged reaming on first shoulder.
- One circumferential marking on lower right-hand quadrant of striker imprint.

Group III:
- Hemispherical bottom of striker imprint in primer.
- A ragged circular ridge around right wall of imprint of striker point.
- A V-shaped mark in upper right-hand quadrant of striker imprint.
- Draw of striker to the right.
- Scribe mark on base of cartridge case from ejector cut burr.
- Shape of front and rear corners of first shoulder.
- Annular pocket in rear corner of first shoulder.
- Circumferential marking in lower left-hand quadrant of striker imprint.
- Slight circumferential mark in lower right-hand quadrant of striker imprint.

Group IV:
- Flat bottom indented tilt mark of octagonal shape in bottom of striker imprint. Angular mark in upper left-hand quadrant. Diagonal mark near top of wall of upper right-hand quadrant.
- Draw of striker toward the lower left-hand quadrant. Radial mark of lower right-hand quadrant of striker imprint.
- Scribe mark on base of cartridge case from ejector cut burr in head of bolt.
- Shape of front and rear corners of first shoulder of cartridge case.
- Annular welt mark around rear corner of first shoulder, due to reaming.
- Fine twin lines of rear corner of first shoulder [4].

The rifles from Companies A,B, C and D (279 total listed) were received on the 12th of February, 1907. Two rounds of FA1903, 2200 FPS ammunition were fired in each rifle as it was unpacked. Each cartridge case was given a reference number, which was related to a certain rifle by serial number. It should be noted that testimony indicated that guard cartridges were used in Brownsville, however this is not cont’d on page 6
Early Firearms, cont'd

included in the report. It would appear that Lt. Hawkins would not omit the fact that five unfired rounds had lead projectiles (bullets) or that the fired cartridge cases would have a neck canalure.225 inch from the mouth of the case [5]. The use of the guard cartridge, which is a reduced velocity round, in a comparison with a standard round, might have posed some problems for Lt. Hawkins. Lt. Hawkins studied the 33 cartridge cases, in a comparison with the test shots from the rifles of the four companies. Mr Spooner checked the comparisons based on firing pin impressions. The two examiners reached the same opinion. These conclusions are embodied in Paragraph XIV of Lt. Hawkins' report:

"In conclusion, it may be stated that it is believed that the cartridge cases of Groups I, II, and III have been identified with the rifles of Company B, Twenty-fifth Infantry, beyond a reasonable doubt. As stated above, there is some doubt as to the identification of Group IV, due to the fact that these cartridge cases have all been inserted in rifles more than once and the primers have probably been struck more than once blow."

Identification of the rifles in question could not be tied in with the individuals who had used them. In fact, at least two of the rifles appeared to have been in the Quartermaster's stores on the night in question. Unable, therefore, to identify the offenders, President Theodore Roosevelt ordered the discharge of three entire companies [6]. Lt. Hawkins also examined the rifles of K, L and M companies of the Twenty-sixth Infantry in March 1907 with the following result:

"No duplicates of the cartridge cases in Groups I, II, III or IV were found among the cartridge cases from the rifles of Companies K, L and M, Twenty-sixth Infantry."

The report with its conclusions is a good example of early cartridge case identification, and is little known except for brief mention in Hatcher [2].

Summary

Two early significant reports on firearms identification have been discussed. These are the earliest papers known to be published in the United States, one in 1900 based on a comparison of projectiles and the other in 1907 based on a comparison of cartridge cases.

References:


Frank Herget

In 1969, Frank Herget started with the Department of Justice as a BNE drug chemist in Santa Ana. He was active in the investigation, analysis and destruction of drugs from large scale operations of the day.

"Heroin was usually white and from Southeast Asia. Hashish was from Afghanistan and we were beginning to see it in the less bulky form of hash oil. There was a lot of marijuana, but not much cocaine.

"Amphetamines (bennies) and barbiturates (reds, blues, rainbow riders, et al.) were big. Methamphetamine was around as tablet desoxyn or left over from diet pills. PCP was plentiful, in pill form mostly. PCP analogs were also abundant, but they weren't illegal. STP and MDA were also prevalent."

One of the largest LSD operations of the time involved "The Brotherhood", a southern California based organization suspected of distributing products like the one called "Orange Sunshine".

"It was really good stuff. The tablets contained on the order of 350ug --with no iso-LSD impurity at all. Plastic and gelatin LSD squares were common. LSD on blotter paper was also seen."

In 1973, the newly formed California State Department of Justice Laboratory in Riverside hired Frank into changing his title to that of criminalist. He observed that the heroin in Riverside was brown, not white. Under the tutelage of Art Young and staff he participated in all phases of criminalistics including the processing of numerous, sometimes very gruesome crime scenes.

In 1976, Frank moved to the DOJ laboratory in Fresno as laboratory manager. He served in the management of the crime laboratory for sixteen years. Training new laboratory personnel, particularly in the area of drug analysis and instrumental analytical techniques. Including his time with the California State Department of Agriculture, Frank's years of California State service total 33 years. Frank has been a CAC member for more than 16 years. He will certainly be missed by those who worked with him.

---Jerry Masseitti

Dorothy Northey

After 22 years of dedicated service at the Contra Costa County Criminalistics Laboratory in Martinez, California, Dorothy Northey is retiring on March 27th.

Dorothy attended U.C. Berkeley and studied under the late Paul Kirk and later worked at his private laboratory. She then went to the Richmond Police Department and had the privilege to work with another early California criminalist, Hillard Reeves. After a short stint with the Alameda County Sheriff's Department, she came to the Contra Costa Sheriff's Criminalistics Laboratory. There, Dorothy has worked on a variety of evidence types, but for the last ten years she has specialized in Forensic Serology. In that capacity Dorothy has paved the way for the introduction of a new PCR-DNA program at Contra Costa. Dorothy was the Sheriff-Coroner's Criminalistics Laboratory Employee of the Year in 1979, 1983 and 1986.

Dorothy has had a distinguished professional career outside of the laboratory as well. She always valued her membership in the Northwest Association of Forensic Sciences. She has also been a very active member of the CAC. She was instrumental in establishing the procedures for, and preparing the CAC's first certification test. She was also the CAC Delegate on the American Board of Criminalistics Examination Committee. Because of her dedication she will continue on that committee until a specific project is completed even though that work will extend past her retirement date. She received the Distinguished member award from the CAC in 1990. In March 1992 Dorothy was given Life Member status in the CAC.

In retirement Dorothy plans to take cooking classes, computer classes and travel with her husband, Stan. Dorothy has said not to "count her out", so I'm sure she will continue to contribute to the profession. We wish her the very best as she begins her retirement.

---Steve Ojena
It is an honor to be asked to participate in the presentation of this, the most prestigious of the awards of the California Association of Criminalists. The award has only been made six times previously. (1965, 1966, 1970, 1971, 1976, & 1977). It behooves those of us old enough to remember Roger Greene to refresh our memories. Younger CAC members should know why we have so memorialized Roger, one of our founding members.

His forebear was Roger Sherman. Roger Sherman was one of the committee of five appointed on June 11, 1776 by the Continental Congress to write the first draft of the Declaration of Independence. The other members of the committee were John Adams, Benjamin Franklin, Thomas Jefferson, and Robert R. Livingston. As a matter of fact Roger Sherman was the only man to sign all four of the great documents which led to the founding of this nation (the Articles of Association in 1774, the Declaration of Independence in 1776, the Articles of Confederation in 1777, and the United States Constitution in 1787).

Roger Sherman Greene I, was of course Roger Sherman Greene III's, grandfather. Roger Sherman Greene I was a Justice of the Supreme Court of the State of Washington. The only son of Roger Sherman Greene III is of course Roger Sherman Greene IV. The family is rightfully proud of its heritage, but you probably never would have heard it from Roger himself.

Roger was an undergraduate in the Department of Chemistry at the University of California at Berkeley from 1927 to 1931. A special section of the freshman chemistry class was reserved for the “cream” of the entering chem students. Of course Roger would never have told you that he was in that section, but a fellow student in that special section, described Roger as “brilliant”. Before he graduated in 1931, it is thought that Roger took a one semester course in qualitative microchemistry in the Department of Biochemistry taught by Dr. Paul L. Kirk. Dr. Kirk at that time had only recently completed the requirements for his Ph.D. Kirk had used the methods and techniques of microchemistry in research for his thesis. Several years would pass before Kirk added “Criminological testing methods” to the description of that course and curriculum.

The year 1932 is generally considered to have been the worst year of the “Great Depression”. Jobs were simply not available. There was no money. However, this was the year that Roger Sherman Greene III was hired to start a new crime laboratory for the Bureau of Criminal Identification and Investigation (CII) of the Department of Justice of the State of California. We have not as yet been able to determine how Roger became aware of the position. We do know that the man in charge of the CII had set forth two criteria for the position. (1) The person to be hired must have a degree in Chemistry. (2) That person must also be familiar with “ballistics.” Roger did have a baccalaureate degree in chemistry and he had spent four years in the R.O.T.C. (Reserve

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2 University of California, Bulletin, General Catalogue, 1939-40, p. 189. "1A General Chemistry I/II... Admission to Chemistry 1A will be determined by the student's high school grades in chemistry and physics and by the results of an aptitude test to be given during the period of enrollment."
Roger began to receive and work cases from the entire state as his reputation for solving cases spread.

Officer Training Corps) where he specialized in ordnance. He was familiar with military weapons of all kinds with their equipment, ammunition, etc. Apparently there had been only one other qualified applicant...a chemist from Stanford. Roger's wife happened to know this because Roger had wondered aloud what had happened to the other fellow.

In 1932 there was a crime laboratory in the Los Angeles Police Department (LAPD) which had been established in 1924 following the recommendations of the Berkeley Chief of Police, August Vollmer. By 1932 Ray Pinker was in charge of the scientific aspects of that laboratory. His original baccalaureate degree was in pharmacy from the University of Southern California (USC). But he was much more than just a pharmacist. He was well versed in the examination of practically all types of physical evidence. Roger was destined to become his only peer in the state of California. Pinker was well known and respected by police investigators and prosecutors throughout Southern California. Ray was never a sworn police officer and was therefore free to take cases from other agencies and work them on his own time.

The San Francisco Police Department also had a crime laboratory of a somewhat more limited capability than the LAPD laboratory. "Frank" La Tulip was originally a police officer. He did not have a strong background in science. He has been described as a very clever police investigator. Frank was able to do firearms cases. He was able to run presumptive tests for blood as well as certain other basic examinations. His experience in general criminalistics was very limited. "He was a smart detective."

Roger started the one-man state laboratory in Sacramento from essentially nothing. He developed a fine laboratory. Because Roger spent very little time talking about himself, his widow was not able to come up with much information about his early experiences. As had been anticipated by the director of the CII who was his boss, a great deal of his work was associated with firearms problems involved in cases. It became evident years later that he was able to handle practically any problem involving physical evidence. By all reports and indications, he was an outstanding scientist. His great curiosity about nature and the world around him had been observed by his parents from the time he was very young, according to his wife. He carried that "need to know the truth or the closest approximation of the truth he could find" with him for the rest of his life.

Roger began to receive and work cases from the entire state as his reputation for solving cases spread through word of mouth among law enforcement investigators, district attorneys and others. He dearly loved to solve problems through understanding and interpreting physical evidence. We all began to get a glimpse of his intellect and vast experience as the CAC was struggling through the formative years in the middle 1950s. We were a very small group in those days and we met to discuss our problems. So, even though most of us had not known Roger during the years prior to World War II, we gained a great deal of insight into the man's abilities. Some of the things he brought out were in response to someone's question regarding a problem case. At other times it could be an aside to the person seated next to him.

He put together an excellent shop in the above ground "basement" of his home. He had a great many conventional tools, but he also had such things as a lathe to turn metal objects. He would spend many hours working there on weekends making a new piece of equipment to do some special work in the lab. He was able to do an excellent job of glass blowing. He not only repaired broken laboratory vessels, but also designed and made new and innovative vessels with which he could extend his research. Often he designed and made things as an improvement on the commercially available glassware. His wife said that any project which was new or innovative was "fair game" for Roger. He referred to his shop as his "junk collection."

There were times when it became so crowded that he had to get rid of something in order to
make room for his new acquisitions.

One of his closest friends, Art Leonard, graduated from UC Berkeley with a degree in Electrical Engineering, but has had a lifelong hobby of solving problems using mathematics since long before today's computers. He too was in special section of the freshman chemistry class reserved for the brightest students. He and Roger became fast friends, and their friendship lasted throughout Roger's lifetime even though Art did not take any other chemistry courses. Years later, they each ground their own telescopes. They later built a mountain cabin in 1940 in a locale where they could make better astronomical observations than would otherwise have been possible in the Sacramento area. Art was asked whether or not it was true that he had located a satellite, which had been lost, using his mathematical prowess. He said that it was true that he had located the satellite, but that the mathematical solution was not as important in finding it as were the telescopes they had made. He was asked to explain how this could be. He casually said, "The quality of our optics was better than the others who had attempted to find it." He has spent his career and retired after teaching at the UC Davis campus.5

In the summer of 1941 Roger attended a two week institute taught by Dr. Kirk. It was held on the UC Berkeley campus primarily for police investigators to learn the rudiments of a few types of physical evidence. Kirk employed David Burd, who had graduated the previous semester in "Technical Criminology"6 to assist him with the institute. It was through this institute that Roger came to know Dave Burd slightly. Roger's primary interest was not in the general aspects of the institute. He spent the entire time in the laboratory studying Dr. Kirk's procedures for the examination of glass. He wanted to improve his ability to do density and refractive index determinations on glass with the maximum accuracy and precision. Years later, Roger did original research in an attempt to further individualize glass using these same properties (i.e., the class characteristics of density and refractive index). For this project, he designed and made a much more sensitive density gradient tube. He was able to show that the limits to which these techniques are able to discriminate between different sources and batches is due to the ultimate nonhomogeneity of the glass. A further limitation on the techniques, as a result of the nonhomogeneity, is the microscopic size of the questioned glass particle.

Because Roger held a commission as a lieutenant in the US Army Reserve, he was called to active duty late in January, 1942. He served as an Ordnance officer in the US Army for the duration of World War II attaining the rank of Major by the end of the war. The head of CII wrote a letter to Dr. Kirk asking him to recommend a graduate of the "Technical Criminology" program to fill Roger's position. David Burd applied. He was quickly hired and put to work in the laboratory almost immediately.

Roger returned to Sacramento and the CII laboratory early in 1946 and resumed work there. By this time the caseload had become so large that one man could no longer handle it, so David Burd was retained as a second man in the laboratory.

The Overell Yacht murder occurred in March of 1947 in Newport bay. The daughter of the Overell's and her boyfriend were accused of murdering her parents aboard the parent's yacht. They then set up almost a case of dynamite to explode using an alarm clock to act as a timing device. They got off the boat for their own safety and to establish an alibi. There was a great deal of physical evidence. Ray Pinker from the LAPD laboratory was hired to work the physical evidence. However, the Attorney General of the state of California in his capacity as the chief law enforcement officer decided to take the case away from the District Attorney of Orange County. His excuse was that the local DA was too old and lacked the proper trial experience to properly prosecute a case of this


6THE OF BACHELOR OF ARTS WITH A MAJOR IN CRIMINOLOGY was the formal designation of our degree prior to the time when Dr. Kirk proposed calling our field of forensic science "criminalistics."

7Interview of David Burd for Historic files of the C.A.C., JUNE 27, 1986.
He spent the entire time in the laboratory studying Dr. Kirk's procedures for the examination of glass. magnitude. The Attorney General was over the CII and Roger Greene. Roger was ordered to go to Orange County to observe Ray Pinker's handling of the physical evidence. This was Ray and Roger's first opportunity to work together. They made a great team and developed a number of critical new concepts.

The Overell case resulted in the creation of another crime laboratory. The Sheriff's Department became the location for the first Orange County crime laboratory in September 1948. Again it was to be a one man laboratory for several years. My first opportunity to meet Roger came about as the result of a homicide in 1951. It was a case where a child molester turned murderer. He became a suspect before the little girl's body could be found. The case turned into a search for and collection of physical evidence which could lead to the body. Six days later the body was found. The remainder of the physical evidence was collected from the grave, the body or buried nearby. I became ill a few days later so the evidence we had collected was shipped to Roger Greene in Sacramento. Roger did an outstanding job of reconstructing the case using threads, occult blood, and other traces as well as the defendant's clothing and the automobile the defendant had borrowed to transport the body to the remote area where it had been buried. However, the first trial resulted in a hung jury. The deputy district attorney had failed to remove one of the jurors who admitted to having been a character witness for a sex offender in an unrelated case some time before.

The recovery from my illness had occurred long before the trial, but I did not attempt to get back into this case, preferring to let Roger carry it. However, after the jury hung up, and before the second trial I learned that one of the missing elements in the prosecution of the case was the failure to prove that the assault was sexual.

The deputy district attorney obtained a court order to allow me to remove the victim's panties from evidence in the county clerk's office in order to examine them for possible semen. I wanted to attempt a new test which had just appeared in the literature several months before. The method for synthesizing the reagents needed had also been published. So, after synthesizing the reagents, I had started using the test routinely on all cases involving seminal stains that had come in to the lab in the interim. The then "new test" was the acid phosphatase enzyme test. I applied the aerosol suspended reagents in a buffer to clean filter paper that had been used to extract possible areas in order to map possible seminal stains. It worked! I found a very tiny questioned stain from which spermatozoa were later isolated and identified. But, then, the deputy DA became concerned that Roger would be upset over the fact that I had found something which he had missed.

The deputy DA waited until Roger came to Santa Ana the day he was to take the stand to ask him about what I had found. Roger's answer was that it is a great new test. The State crime laboratory had not started using it yet, and added, "but we should do so." He also told the jury the same thing. That jury found murder in the first degree.

Allan Gilmore, was formerly the director of the Sacramento County DA's Laboratory. Before that he had been a criminalist in the old CII laboratory in Sacramento. He recently wrote, "I went to work at the State lab just to be around Roger. He was an outstanding human being and was greatly admired as an extremely talented scientist.

"He began experimenting with cutting spurious reflections on newly fired bullets. He tried rubbing soap on the surface and then rubbing off the excess to dull them to compare with the less shiny evidence bullets. This led to the magnesium smoke technique which was found to be effective.

"The telephone company would design locks on their outdoor telephones and bring them to Roger to see how long it would take him to pick them.

"We'd play games on Roger. When Dave Burd, Harry Johnson, or I had a real hard firearms or toolmark case, we'd groan whenever Roger was in the room. He'd overhear us and was such a caring person, he would come over, take a look
at it, and make it in a short while.

"He was proficient in Lattes and absorption-elution blood typing. He even contacted the manufacturer for benzidine, which we could use in those days, and suggested how they could improve the product.

"Defense attorneys had great respect for him. They even called the lab to express their concern when it was obvious he was ill. A pathologist called to warn about his white fingernails when the leukemia began to set in."

Roger was also a very religious man and he knew the Bible very well. During a court session a defense attorney quoted a portion of the Bible to make a point for the defense against the testimony which Roger had been giving. Roger not only quoted that portion of the passage which the defense attorney had used, he went on to quote the complete text, thereby correcting the defense attorney's improper implications.

Roger was a founding member of the CAC and a Fellow in the American Academy of Forensic Sciences. His untimely death in 1963 was due to leukemia.

THE PURPOSE OF THE ROGER SHERMAN GREENE, III AWARD:

The Award was instituted in 1963 and is designed to honor individuals who have made truly outstanding contributions to the profession of criminalistics.

REQUIREMENTS:

The award will only be given to criminalists or specialists in a scientific discipline within the field of criminalistics. Any qualifying persons are eligible, not just members of C.A.C. The principal reason for making the award would be an outstanding contribution to the field of criminalistics. Contributions which have aided or promoted the work and development of C.A.C. should be considered to be of importance, but qualified persons outside of this organization are eligible. Contributions will include any one or combination of the following:

1. Outstanding and unusual professional work on specific investigations.
2. Outstanding research and publication of the results or presentation as a formal paper before a meeting of C.A.C.
3. A series of papers, presented at different times covering a wide range of subject matter which shows skillful work.
4. Unusual contributions to the education of criminalists.
5. High level direction or development of criminalistic laboratories.
6. Some other unusual and significant contributions to the improvement of the profession of criminalistics.

Under normal circumstance, the award will not be given for a specific paper presented or for some other routine type activity. Rather, the award is for unusual and outstanding work. In most instances, the receiver should be what most members would class as a skilled and experienced worker of high ability and integrity within the professional field of criminalistics. While no monetary or other benefit will be given in connection with the award, it should be considered by the recipient as a sign of respect and admiration for work in the professional field of criminalistics. Awards may be presented for contributions meeting the basic requirements which have occurred at any time, past, present or future. . . the very wording on the award will serve as a memorial to Roger S. Greene, III."

There have only been six people who have received this award until now. Their names and the years in which they received the awards are:


Tonight (October 18, 1991) we are gathered here to honor Dr. Walter C. McCrone as the seventh recipient of the Roger Sherman Greene, III Memorial Award.
Northern Section

On December 2, 1991, a CAC Northern Section Dinner Meeting was held at The Lantern Restaurant in Oakland. The dinner meeting was hosted by Diane Bowman of the Oakland Police Department Crime Lab. The guest speaker for the evening was John Twilley, Senior Scientist at the Los Angeles County Museum of Art. His topic was “Authenticity in Art; or A Funny Thing Happened on the Way to the Auction”. The meeting was attended by 46 individuals.

SEROLOGY STUDY GROUP

Chairs: Pam Sartori, Oakland Police Dept and Nancy Hartell, San Mateo County Sheriff.

The Serology Study Group met on December 2, 1991 at the Oakland Police Department Crime Lab. In the continuing series of getting “Back to the Basics”, Laurie Rawlinson of SERI gave a presentation on p50.

DRUG STUDY GROUP

Chairs: Diane Bowman and Mary Trudell, Oakland Police Dept.

On October 30, 1991, the CAC Northern Drug Study Group met at the Oakland Police Department Crime Lab. Jay Mark, who is a Criminalist Manager for the DOJ Bureau of Forensic Services, was the guest speaker. The topic of the meeting was “Occupational Exposures in a Laboratory Setting”. Mr. Mark addressed issues concerning the new classification of cocaine as a hazardous material and the laws that regulate occupational exposures in any laboratory. These include chemical, biological, and radioactive exposures. Title 8 is the California code of regulations which governs areas such as record keeping, chemical hygiene, airborne contaminants, and respiratory protection programs. He discussed these topics and the specifics addressed by each. He described the inspection protocol used in the DOJ labs, the results obtained, and the impact of these results on safe handling procedures required by DOJ. He covered DOJ’s safe handling requirements for controlled substances as well as for chemicals used in other sections of the laboratory. Mr. Mark discussed Material Safety Data Sheets and the useful information that they contain. The meeting was attended by sixteen individuals. The information discussed by Mr. Mark was very informative. He was not able to cover all of the topics of interest due to time limitations. We are planning on having Mr. Mark and his staff speak again in the near future to cover topics in more depth as well as additional topics.

On December 2, 1991, the CAC Northern Region Drug Study Group met at the Oakland Police Department Crime Lab. The speaker was “Lisa”, who has formerly used various controlled substances. She spoke about the controlled substances she has used, the effects of these controlled substances, and the circumstances in her life which led to her drug abuse. She also abused alcohol in addition to controlled substances. She has been sober for eight years and routinely speaks about her past to educate and help others. Her talk was very informative and gave the attendees exposure to an area not often encountered by most criminals.

On February 13, 1992, the CAC Northern Region Drug Study Group met at the Oakland Police Department Crime Lab. Dr. Wayne Duncan was the guest speaker. Dr. Duncan is the Product Manager for the Infrared Detector at the Scientific Instruments Division of Hewlett-Packard in Palo Alto. The topic of the meeting was “Forensic Applications of GC/FTIR/MS”. There were thirteen individuals present at the meeting.

Dr. Duncan gave a brief overview of infrared spectrometry. He compared dispersive and Fourier Transform methods and techniques as they relate to infrared spectrometry. He then gave a brief overview of gas chromatography/mass spectrometry.

The number of known compounds in the world is now at about 10 million. This number has significantly increased and it doubles about every 11 years. We now need sophisticated instrumentation to differentiate between these different compounds. This is where GC/FTIR/MS plays a large role. Using these techniques linked together, one can get a high confidence confirmation regarding the identity of a compound.

Dr. Duncan addressed the means in which the three instruments are linked together. They may be linked in a parallel or serial manner.
The manner used is dictated by the applications desired.

This type of analysis has been applied to areas such as steroid testing, solid dosage confirmation, and abuse screening. The infrared spectra and mass spectra give complimentary information that provides irrefutable evidence regarding the identity of the compounds present. The vapor phase infrared spectra that are obtained are free of matrix effects because the molecules are in an inert gas, unlike conventional spectra. Thus, the spectra obtained are very reproducible and small differences between two spectra can be used to differentiate between two compounds. The infrared portion is non-destructive whereas the mass spectrometer portion degrades the compounds. Also, there can be variations in the ion ratios observed in the mass spectra that are caused by tuning variations and the cleanliness of the source. The mass spectrometer is very sensitive and provides homologous series information. The Fourier Transform infrared spectrometer is moderately sensitive, class specific, provides information on functional groups, and can be used to differentiate between isomers. The three techniques when linked together can provide qualitative and quantitative information as well as retention time data and structure based identifications that are irrefutable.

Diane Bowman

**FIREARMS STUDY GROUP**

Chairs: Eric Parsons, Sacramento County and Lansing Lee, Oakland Police Dept.

The Firearms Study Group met on December 2, 1991 at the Oakland Police Department Crime Lab. The topics included a report on the June 1991 AFTE meeting, Doug Bateman's firearms inventory/bullet data base, the breech face photograph project, interesting cases and court display/testimony aids.

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**SOUTHERN SECTION**

On October 17, 1991, a combined Northern and Southern CAC Serology Study Group meeting was held at the Fall CAC Seminar. An open forum discussion of using results from genetic marker typing for investigative leads on ethnicity and a general discussion on DNA. Nine individuals were in attendance.

On January 23, 1992, a CAC Southern Section Dinner meeting was held at the Steven's Steak and Seafood House in Commerce. The dinner meeting was hosted by the Los Angeles County Sheriff's Department. The guest speaker was Sgt. Jerry Kaono of LASD Carson Station who spoke on Gang Awareness. The dinner meeting was attended by 52 individuals. Door prizes were furnished by Kevin Fockler of Baxter Scientific.

**Southern Study Groups met on the same day and are described below.**

**TOXICOLOGY STUDY GROUP**

Chair: Manuel Munoz, Los Angeles Co. Chief Medical Examiner-Coroner.

Ten individuals attended the Toxicology Study Group meeting. Dave Vidal of Los Angeles County Sheriff's Department, Toxicology Section, discussed "MDA intoxication of an 11 month old baby". An open forum discussion included future topics (prozac).

**SEROLOGY STUDY GROUP**

Chairs: David Hong, LASD and Don Jones, San Bernardino County Sheriff.

Don Jones reviewed the DNA articles in Science, Vol 254, Dec 20, 1991. As part of the serology"Back-To-Basics" sessions, Dave Hong lectured on Haptoglobin. Jim White, Carol Hunter and others discussed availability of gradient gels/apparatus for Haptoglobins. This lecture was videotaped, contact Training and Resources Committee. Future serology study group activities are to con-
continue the "Back-To-Basics" lectures on immunology (Dave Stockwell, SBSD) and an open forum discussion on report writing. In attendance were 20 individuals.

**BLOOD ALCOHOL STUDY GROUP**
Chair: Dan Nathan, Los Angeles County Sheriff.

Twenty five individuals attended the Blood Alcohol Study Group meeting. Topics of discussion included a report on California Public Defenders Association Drunk Driving Seminar, 210 to 1 ratio and recent rulings affecting DMV and Admin Per Se.

**DRUG STUDY GROUP**
Chairs: Elizabeth Thompson and John Davis, Orange County Sheriff-Coroner.

Sixteen individuals attended the Drug Study Group meeting. The guest speaker was Sgt. Jordan of the Orange County Sheriff's Department. He discussed how narcotics investigations are different from other types of law enforcement investigations. His discussion included the use of informants, buy-busts and reverse sting operations. He also relayed information on trends in drug use and the clandestine manufacture of methamphetamine. Terry Todd of Orange County Sheriff's Department talked about the use of dogs in narcotics investigations. He brought along Sonny, the Orange County Sheriff's drug sniffing dog and demonstrated his skills by having him find packages of marijuana, cocaine, heroin and methamphetamine which had been placed around the meeting room prior to the arrival of the study group attendees.

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**CAC Nominating Committee**

**1992 Slate of Candidates**

The following individuals have agreed to be candidates in the May 1992 California Association of Criminalists' election of officers:

**PRESIDENT ELECT**
Jerry Chism

**RECORDING SECRETARY**
Carolyn Gannett

**REGIONAL DIRECTOR NORTH**
Jennifer S. Mihalovich

**MEMBERSHIP SECRETARY**
Mary Hong
Patricia Lough

In order to assist the CAC membership in its selection process, brief statements from each of the candidates are being published with this announcement.

Please note that in addition to the list of candidates provided by the Nominating Committee, nominations will also be accepted from the floor prior to the election.

Susan D. Narveson, Chairman
CAC Nominating Committee.

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**CANDIDATE STATEMENTS**

**CANDIDATE FOR PRESIDENT ELECT**
**JERRY CHISM:**

I have been a Criminalist since 1960. I qualified and joined the CAC in the Spring of 1961. I have served on several committees, twice on Bylaws, Nominating Committee, etc., my most recent committee work was as Chairman of the first Board of Examiners for Certification. I was appointed as the first Membership Secretary, I held that position for approximately 5 years. I was then elected to the position of Recording Secretary. I next served CAC as President Elect, President 12...
Candidate's statements, cont'd

CANDIDATE FOR RECORDING SECRETARY,
CAROLYN GANNETT:

The primary responsibilities of the CAC Recording Secretary include composing the minutes of each board meeting, notifying members of impending business meetings and receiving committee and financial reports.

My membership in the CAC began in 1989 during my final semester at the University of California at Berkeley. After graduation, I accepted a position as Criminalist at the Orange County Sheriff-Coroner's Department where my first assignment was in solid dosage drug analysis. Currently my time and efforts are concentrated in the Trace Evidence Unit.

I consider it both a privilege and a professional responsibility to serve the CAC. Since 1990 it has been my charge to maintain the financial records and inventories of the CAC Merchandise Committee. In addition, I was appointed Chairman of the Historical Committee in 1991. It will be both a challenge and a pleasure to be provided the opportunity to contribute my service to the CAC Board of Directors.

CANDIDATE FOR REGIONAL DIRECTOR NORTH,
JENNIFER S. MIHALOVAICH:

I have been the Regional Director North for the past two years. In that time period we have had nine dinner meetings and numerous study group meetings. I have found the position of Regional Director to be rewarding and challenging.

I have been a member of the CAC since the fall of 1986 and have served on several committees including the Nominating Committee, the Public Relations Committee and the CAC Ad hoc committee on DNA Quality Assurance. I have co-authored and presented papers at the CAC Seminars, the International Meeting of Forensic Science in Vancouver B.C. and the American Academy of Forensic Science.

I received my B.S. degree in Microbiology from the University of Montana in 1985 and my M.P.H. degree in Forensic Science from the University of California, Berkeley, in 1987. I have been employed by Forensic Science Associates since November of 1986. Prior to this employment I was a student intern at Contra Costa County Criminalistics Laboratory and as an undergraduate I was employed by the Montana State Forensic Laboratory.

I plan on working hard to carry out the responsibilities as Regional Director North. This would include updating the CAC business contacts within laboratories, involving more members in dinner meetings and study groups, and locating interesting people to give presentations at the dinner meetings.

CANDIDATE FOR MEMBERSHIP SECRETARY,
MARY MURPHY HONG:

As Membership Secretary for the past two years, I have been responsible for processing new member applications and for maintaining the membership roster and files. I have been working on ways to make the membership roster more useful to the members and to the Board of Directors. I have enjoyed serving the CAC in this capacity; it has been educational and has enabled me to get to know more members. I would like to continue to serve as Membership Secretary for another term.

CANDIDATE FOR MEMBERSHIP SECRETARY,
PATRICIA LOUGH:

The California Association of Criminalists offers a wide range of opportunities. I have been a member of CAC since 1985, and I feel very strongly that CAC participation enhances both personal and professional growth and serves to renew individual motivation.

As a member of my local chapter of Business and Professional Women, I served as membership
Chair for one year. My responsibilities for that position included maintenance of membership and attendance records, contacting prospective and inactive members, preparing announcements for meetings and activities for the local newspapers, and conducting membership drives. I feel this experience will help me perform the duties of Membership Secretary for CAC.

I have enjoyed my years with CAC and am anxious and enthusiastic to share this opportunity with prospective members.

Candidate's statements, cont'd

ABC UPDATE

The last meeting of the American Board of Criminalistics (ABC) was held in conjunction with the American Academy of Forensic Sciences annual meeting in New Orleans.

It was evident that the ABC and the certification process is growing and on track. The AAFS Criminalistics Section has requested formal membership and it is anticipated that at least one of the remaining regional associations will be requesting membership.

The development of the specialty examinations is progressing. Making a good, valid test is difficult and very time consuming. However, thanks to the hard work of the ABC Examination Committee, supported by the peer groups, this process is continuing and the availability of specialty exams is no longer just a distant dream. A special thanks should be given to Dorothy Northej for her hard work and the driving force that she brought to the exam development process.

Another major item that was accomplished at the meeting was the drafting of a contract to license the CAC General Examination. This contract draft delineates the payment schedule and process that the ABC will utilize to reimburse the CAC for the majority of the costs incurred to develop the general examination.

This was my last meeting as a member of the ABC Board of Directors, Steve Renteria of the LASO Crime Lab will be the new CAC representative. Also, Ed Rhodes will be replacing Dorothy Northej on the ABC Examination Committee.

Volunteering to work on projects that enrich our profession and association is a rewarding experience. We are all very busy in our personal and professional lives, but by expending that little extra effort, you receive a special feeling of accomplishment. I highly recommend that everyone should find time to volunteer for some task within the CAC, you won't regret the decision.

Thank you for your assistance in getting this project off the ground and heading in the right direction.

Greg Matheson
ABC Representative
The CAC News

MID-ATLANTIC ASSOCIATION OF FORENSIC SCIENTISTS
1991 ANNUAL MEETING ABSTRACTS

QUESTION DOCUMENTS

IDENTIFICATION OF A PRICING LABELER
David Grimes, Virginia Division of Forensic Science
No abstract.

THE SONY PALM TOP COMPUTER
Kirsten S. Jackson, Virginia Division of Forensic Science
SONY of Japan has developed a computer which recognizes and converts handwriting into type using a touch sensitive screen and an electronic stylus instead of a keyboard.

IDENTIFICATION OF A TELLER AUDIT MACHINE
Maureen A. Higgins, FBI Laboratory, Washington, DC
Questioned impressions of a banking document were intercompared with known impressions of ten machines. Based on specific patterns demonstrated on the impressions, the suspect machine was requested for additional examinations. More impressions were taken and the print head examined and compared.

REFLECTANCE SPECTROPHOTOMETRIC EXAMINATION OF WRITING INKS
Albert H. Lyter III, Federal Forensic Associates Inc., Raleigh, NC
Several techniques which describe the use of reflectance spectrophotometry to analyze writing inks have appeared in the recent literature. This work will describe the technique with attention to wavelength dependence, reproducibility, instrumental error, limits of deducibility and comparison of chromatographic mediums. Special attention will be given to analysis of similar ink formulations and batch variations within the same ink formulation.

USA TODAY
Larry F. Ziegler, BATF National Laboratory, Rockville, MD
Portions of newsletter pages were recently submitted to the ATF National Laboratory Center in connection with a major mail bombing investigation. The techniques utilized and the results of the examination are discussed. A familiarization of the identifying characteristics and methodology utilized in constructing a large city newspaper may provide investigative leads, ultimately isolating the printing site where the newspaper was printed.

ASTM STANDARD FOR WRITING INK COMPARISONS
No abstract.

COLOR PHOTOCOPY ANALYSIS USING TLC
No abstract.

COUNTERFEIT HOLOGRAMS
No abstract.

GENERAL SESSION

CONTRAST ENHANCEMENT OF CYANOACRYLATE-DEVELOPED LATENT FINGERPRINT USING BIOLOGICAL STAINS AND COMMERCIAL FABRIC DYES
Julie B. Kempton and Walter F. Rowe, George Washington University, Washington, DC
Cyanacrylate-developed latent fingerprints may be difficult to see or photograph if they are on light colored surfaces. Biological stains and Rit fabric dyes were tested for their ability to stain cyanacrylate-developed latent fingerprints. Methanolic solutions of gentian violet, safranin orange, diamond fuschsin, methyl green, iodine green and Janus green B were found to stain cyanacrylate-developed fingerprints on polyethylene, porcelain, and aluminum beverage cans. Hot (60°C) aqueous solutions of seven different shades of Rit fabric dyes were found to stain cyanacrylate-developed latent fingerprints on polyethylene, porcelain, aluminum beverage cans and styrofoam cups. The latent fingerprints stained with safranin orange were strongly fluorescent under 312 nm ultraviolet light; latent fingerprints stained with gentian violet and diamond fuschsin were weakly fluorescent.

ARSON AT NUMBER 10 STRATHCLYDE STREET
Richard Jesser, Perkins-Elmer Corporation
While the end results are identical, the United Kingdom approaches arson evidence differently. Contrasting these differences, this talk discusses the hardware and principles for the gas chromatographic analysis.

EVALUATION OF THE USE OF COMMERCIALY AVAILABLE SORBENT MATERIAL FOR SAMPLE COLLECTION AT FIRE SCENES
Mary Lou Fultz, Christine A. Venturoelle and Larry C. Ford, BATF National Laboratory Center, Rockville, MD
A variety of sorbent materials used in hazardous waste spill control have become commercially available in recent years. Some materials are specifically designed for oil and solvent spill clean up. Such material would seem to be useful for recovery of petroleum products from water or surfaces at a fire scene. This paper presents an evaluation of the effectiveness of using hazardous spill sorbents for sample recovery of petroleum products. Problems encountered with background contamination on the sorbents thus limiting their potential usefulness in flammable and combustible liquid analysis will be discussed.

IDENTIFICATION OF PETROLEUM-BASED ACCELERANTS IN ARSON DEBRIS BY TARGET COMPOUND GC/MS
Raymond O. Kato, BATF National Laboratory Center, Rockville, MD
Target compound GC/MS is a method by which petroleum-based accelerants may be identified in arson debris extracts that are too contaminated for conventional GC-FID identification. Co-eluting pyrolysis products arising from wood, carpeting, floor tile and other materials at the arson scene can be effectively "filtered out" of the chromatogram by the mass spectrometer. Quantitation files for gasoline, medium petroleum distillate (MPD), and heavy petroleum distillate (HPD) designate retention time windows and ion profiles to be used by the data system for target compound identification. The data system quantitates each compound and replots the data as a 'target compound spectrum' (TCC), which is a bar graph of base ion peak area by retention time. Unknown samples are identified by visually comparing their TCC's against a library of standard accelerant TCC's. Laboratory-generated pyrolysis products were spiked with low concentra-
SMOKELESS POWDER CHARACTERIZATION: AN INVESTIGATIVE TOOL IN PIPE BOMBINGS

Cynthia L. Wallace, BATF National Laboratory Center, Rockville, MD
Smokeless powder is the filler in more than 50% of US bombings. The physical and chemical characteristics of smokeless powder may indicate its manufacturer, identify the specific powder used, or link powder in a suspect's possession to that in the bomb. Changes in manufacturing and marketing can date a smokeless powder. Case examples will illustrate the types of information which can be developed and how this information may be used to provide investigative leads or associative evidence in pipe bombings.

YORK COLLEGE OF PENNSYLVANIA OFFERS A BACHELOR OF SCIENCE IN CRIMINALISTICS

Sherry T. Brown, York College of Pennsylvania
York College of Pennsylvania, known for its criminal justice programs, recently established a Bachelor of Science degree in Physical Science with a concentration in Criminalistics. Due to student and faculty interest as well as the limited number of bachelor programs in the Mid-Atlantic area, York College felt it could offer a challenging major that prepares graduates for crime laboratory positions. An overview of the program, courses, practical laboratory exercises, and comparison to other programs will be covered.

FORENSIC SCIENCE EXPERTS: EDUCATION AND EXPERTISE

Charles R. Boldt Jr., BATF National Laboratory Center, Rockville, MD
When presenting results and conclusions in court, the forensic scientist testifies as, and is relied upon by the court, as an "expert". The present approach in assessing expertise to determine if an individual possesses the requisite qualifications of a legitimate "expert" is clearly inadequate. Examples of expert misrepresentation and fraud in recent cases underscore this inadequacy. In most recognized professions, a significant measure of expertise is advanced education, often a requirement for acceptability at the journeyman level. An overview of graduate forensic education programs shows wide divergence in content and emphasis. What should be suitable for the practicing forensic scientist interested in graduate study will be discussed.

FACTORS WHICH INFLUENCE INTERPRETATION IN FORENSIC TOXICOLOGY: 1. AGE

Nicholas T. Lappas, George Washington University, Washington, DC
The forensic toxicologist is called upon in a number of varied circumstances to provide assistance in the interpretation of tissue drug concentrations. The interpretation of tissue levels is made largely on the base of a compiled body of data in which tissue levels have been correlated with the effect observed, e.g., therapeutic, toxic, lethal. Generally, such data is characterized by extensive variability since the population from which they are derived is not homogeneous. There has been little systematic evaluation of the several factors which may alter the disposition of or the effect produced by a drug and in so doing influence both the effective tissue concentrations and the interpretation of such tissue concentrations. Several studies have demonstrated that age is one factor which may lead to modifications of both pharmacokinetics and pharmacodynamics. The age related consequences on these aspects of drug action have been evaluated for several drugs in both experimental and clinical studies. Several of these findings will be reviewed and the potential problems which they may present to forensic toxicologists will be discussed.

AMERICAN BOARD OF CRIMINALISTICS: THE EXAMINATIONS COMMITTEE AND PEER GROUPS - AN UPDATE

Isabel Conely, Maryland State Police Crime Lab, Berlin, MD
No abstract.

AMERICAN BOARD OF CRIMINALISTICS: THE BOARD OF DIRECTORS - AN UPDATE

Richard E. Tontarski Jr., BATF National Laboratory Center, Rockville, MD
No abstract.

DNA RFLP ANALYSIS OF SEMEN BLOOD STAINS: INTER-LABORATORY PROFICIENCY RESULTS

Sharlene P. Blum, National Center for Forensic Science
23 samples consisting of semen stains and mixed stains containing blood and semen were analyzed using DNA RFLP techniques. Testing of these unknowns was performed by our laboratory as part of an external DNA proficiency program. Sample volumes varied from 3 ul to 80 ul. The following aspects of the analysis process were evaluated to determine the YIELD OF DNA, EXTENT OF DIGESTION, ability to determine IDENTITY or NON-IDENTITY between samples and the AMPLIFICATION efficiency of the DNA RFLP techniques employed by our laboratory exhibited sensitivity and generated reproducible results when applied to forensic like specimens.

DNA TYPING USING PCR: HLA DG ALPHA AND OTHER PCR-BASED SYSTEMS RELATIVE TO RFLP ANALYSIS

Kristen Gorvin, Cetus Corporation
The Polymerase Chain Reaction (PCR) is a method for the enzymatic amplification of specific regions of DNA. This report describes DNA and the alternate methods of forensic DNA analysis using PCR and RFLP. Length polymorphism include RFLP and the new developing AMPLIFICATION technology while DNA polymorphisms include Amplification of HLA DG Alpha typing. These types of applications to forensic evidence examinations will be discussed with particular attention being given to the sequence polymorphism at the HLA DG Alpha locus.

AUTOMATED ANALYSIS OF FLUORESCENCE AMPLIFIED FREGMENT LINKS POLYMORPHISM FOR DNA TYPING

Applied Biosystems
No abstract.

DISCRIMINATION OF FIBERS, LACQUERS AND DOCUMENTS BY MICROSCOPE SPECTROPHOTOMETRY

Daniel Beach, Karl Zeiss Inc.
Microscope spectral measuring techniques have become increasingly important in forensic sciences as a modern analytical tool. The Universal Microscope SpectroPhotometer system MPM-AKT is specifically designed for routine work in fiber discrimination, paint chip and document identification, and counterfeit analysis. The MPM system provides all measuring modes, such as transmission, fluorescence, and specular and diffuse reflectance. The spectral range is from UV to NIR (240-2100 nm) which greatly enhance the significance of the results in work comparing minute spectral and color differences in samples (metameric effects). Fluorescence spectral analysis helps to identify optical brighteners in fibers and the type of ink used in documents. Dedicated software modules help to quantify and compare spectral data and to establish a data base.
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