MAAFS NEWSLETTER

A Publication of the Mid-Atlantic Association of Forensic Scientists

Editors: Dr. Donald R. Lundy
Dr. Antonio A. Cantu

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The Forthcoming Spring 1976 Meeting

On February 7, 1976 we mailed a MAAFS Notice which contained pertinent information on our coming Spring Meeting. We appologize for not providing everyone with a brochure on the city of Williamsburg, but we only had a limited number available. Among the items mailed were a Hotel Reservation form and a Meeting Registration form. Please mail these prior to March 5, 1976 if you plan to attend the Meeting. Also we mailed together with the Notice your membership due notice. Though sent in February and due in January please try to settle this sometimes this month.

Minutes of the Fall 1975 Business Meeting

The Fall 1975 MAAFS Meeting was held on November 21 & 22, 1975 in McLean, VA. The meeting chairman was Mr. Billy F. Hopkins from the Drug Enforcement Administration. The following are the minutes to the business meeting:

President O'Rear called the meeting to order at 4:25 p.m.,. The Treasurer's report was read and accepted by the members.

Chairman of the Nominating Committe, J. Rosenstein, submitted Dr. T. Cantu as the President-elect. No names were submitted from the floor, and Dr. Cantu was elected with no dissenters.

The Arrangement Chairman for the Spring Meeting, T. King, gave a brief description of the meeting to be held at Williamsburg March 26 & 27, 1976. Dr. P. Ferrara volunteered as the Program Chairman. An Exhibits Chairman will be appoint

A discussion regarding the February Meeting of the Academy of Forensic Scientists resulted in the following motion (B. Herndon) "that up to $200.00 would be made available to the President, in order to hold a Reception for the members at the Academy Meeting" (seconded P. Ferrara). Carried. The second motion was to have the Association pay for the drinks for the Cocktail party before the Banquet on Nov. 21st, 1975. Carried.

Dr. Cantu found that the Association has to fill in forms (which he had obtained) to submit to the Internal Revenue Service. In view of the amount in our treasury, President O'Rear suggested that the members should think about some Award, Project etc. from the Association and submit this to the new President-elect, A. Bober.

The President-elect also requested ideas for the next Fall Meeting to be submitted to him. There was a discussion about the possibility of allowing Forensic Science students to attend the meeting. The By Laws will be checked for feasibility. The meeting adjourned at 5:18 p.m.

Following the Business meeting the President-elect requested that Dr. Cantu be Chairman of the 1976 Fall meeting, and if possible to arrange to hold the meeting in downtown Washington.

Norman C. Law
Secretary-Treasurer

Abstracts of Papers Presented

Following are the Abstracts of the talks presented at the Fall MAAFS Meeting.

New LSD DOSAGE FORMS
By Donald T. King
Bureau of Forensic Science
P O Box 999
Richmond, VA 23208

The Drug Laboratory of the Virginia Bureau of Forensic Science encounters a broad scope of illegal drugs submitted for analysis by statewide law

enforcement agencies. In recent years, there has been an influx in the occurence of Lysergic Acid Diethylamide (LSD) in two particular areas of Virginia -- the Central region around Richmond and the Tidewater region near Norfolk.

Several of the new dosage formats for confiscated LSD specimens received by the Laboratory include blotter acids (LSD impregnated paper) with streets names such as "Frog Acid", "Window Panes", "Star Acid", "Pyramid and Eye", "Mr. Natural" and others.

As for the tablet dosages of LSD, the physical appearance of the tablet can vary considerably. It does appear; however, that Phencyclidine tablets and LSD tablets are quite similar in appearance and have been sold interchangeably under the same name. LSD has also been frequently represented as Mescaline tablets "on the street" to increase sales. The Drug Laboratory has yet to receive any Mescaline in tablet form.

At the present time, methodology difficulties exist in the chemical extraction of LSD for analytical purposes. These problems -- LSD isolation from tablet binders and insufficient quantities per tablet for normal analytical procedures -- were offered for discussion at this meeting.

FORENSIC ANALYSES BY LIQUID CHROMATOGRAPHY

By J. Strimaitis
Waters Associates, Inc.
Maple Street
Milford, MA 01757

Liquid chromatography is a separations technology which offers many capabilities for forensic analyses including non-destructive detection, rapid quantitation, and analysis of a wide range of compounds. The LC analysis of illicit drug preparations for both the controlled substance of interest and a variety of adulterants will be discussed. Other topics to be covered include comparison of confiscated drug samples to establish common origins, preparative-scale separations for collection and identification, and analysis of explosives, paints, and oils.

SCIENTIFIC INTERROGATION TECHNIQUES

By Bell P. Herndon
Section Chief
FBI Laboratory, Washington, D.C.

Paper presented covered a survey of modern scientific interrogation techniques in which Forensic scientists should have general knowledge. Included were instrumental methods of detection of deception such as (1) conventional polygraph technique with examination of respiratory patterns, psychogalvanic skin response, and the cardiovascular system; (2) the Psychological Stress Evaluator (PSE) or Voice Analyzer techniques which utilize low frequency voice modulations; (3) microwave respiratory monitor and (4) biological radio communications - concept, research, and feasibility. Also included was a general discussion of the limitations of the so-called truth serums and narco-interrogation techniques and the use of hypnosis, particularly with its effectiveness in refreshing memory of witnesses.

CONTROL OF A DANGEROUS DRUG SUBSTANCE-A CASE STUDY-METHAQUALONE

By Joseph Murphy
Drug Information Section
Office of Science and Technology
Drug Enforcement Administration
Washington, D.C.

The criteria for controlling a dangerous drug substance pursuant to the Controlled Substances Act of 1970 is outlined. Also described is the overall chronology performed by DEA in controlling the dangerous drug substance methaqualone, secobarbital, pentobarbital, and amobarbital.

USE OF M.S./G.C./ COMPUTER SYSTEM IN VIRGINIA

By S. W. Goza
Bureau of Forensic Science
P.O. Box 999
Richmond, VA 23208

During the last year we have used a Mass Spectrometer/Gas Chromatograph/ Computer System marketed by E. I. DuPont. This system consists of A Dupont 21-490-B M.S., a Varian 2700 G. C. and an H-P 2100 Computer with library search capabilities.

Each month we process from 50 to 200 unknowns with this system. Approximately half are submitted by Toxicology and half by the Drug Chemists. There have been four types of samples submitted to the Mass Spectrometer: Mixtures, Reactants and Intermediates from illegal laboratories, knowns for confirmation, and complete unknowns. Of the approximately 1,100 samples processed by this system, less than five percent were unidentifiable. Most of the unidentified we think were Metabolites or naturally occuring compounds extracted from biological samples. As we gain experience and add to our library, the percentage of unidentified should go down.

The initial cost and maintenance costs for a system such as this are high, but the time saved and the information we can get from it far out-weigh the cost. The number of man-hours saved by this equipment over the last year can not be estimated, because of the problems it solved would have been difficult if not impossible by other means.

COMPARISON OF GLASS FRAGMENTS BY THEIR PHOTOLUMINESCENCE

Peter F. Jones, Ph.D., Robert S. Nesbitt, A.B., and A.R. Calloway, A.A.
The Aerospace Corporation
El Segundo, California

For the individualization of glass fragments, photoluminescence spectroscopy appears to be a powerful adjunct to density and refractive index measurements. Due to large-scale automation in window glass manufacture, both the refractive index and densities observed for the majority of glass fragments fall with in a very narrow range. Approximately 400 glass samples from crime laboratories in California have been collected and the refractive index measured using either a refractometer or a Mettler hot stage with microscope. Seventeen percent of the samples measured using a refractometer were indistinguishable within the experimental precision of $\pm$ 0.0002 and fifty percent of these samples had a refractive index between 1.5160 and 1.5180. We are currently investigationg the luminescence properties of the samples not distinguishable by their refractive index. All samples exhibit phosphorescence with two broad bands varied among the samples. Indeed, twelve of thirteen samples (previously indistinguishable) were distinguishable by this measurement. The total analysis time per sample is 15-20 minutes. Variables such as sample temperature, size, trace impurity content, and location within a window pane are also being investigated.

NEW TECHNIQUES FOR THE DETECTION OF GUNSHOT RESIDUE

By John E. Wessel, Robert S. Nesbitt, and Peter F. Jones
The Aerospace Corporation
El Segundo, Calif. 90245 USA

Recently we described a rapid method for detection of gunshot residue on the hands of a suspect following a shooting based on the photoluminescence determination of the presence of Pb and Sb (P. F. Jones and R. S. Nesbitt, J. Forensic Sciences 20, 231 (1975)). We have now developed a simple procedure using adhesive tape for field collection of the hand-samples to be analyzed and have determined the reliability for detection of residues after firing a variety of handguns. As with any other technique that is based soley upon detection of Pb, Sb, or Ba, the results of the analysis are most useful as an investigative aid and usually cannot provide conclusive evidence for the presence of gunshot residue. Conclusive evidence may be obtained by a new procedure we have developed using the scanning electron microscope with x-ray analyzer to characterize individual particles collected on the adhesive tape hand-lift. This technique has been 100% effective in blind tests in identifying hand-lifts from persons that recently fired a handgun. This is a major improvement over current methods because one-half of the firing specimens were from 0.22 caliber handgun firings and one-half of the handblanks were from individuals with high exposure to contaminant particles.

APPLICATION OF THE SCANNING ELECTRON MICROSCOPE TO FORENSIC SCIENCE

By Dr. Victor R. Matricardi
F B I Laboratory
Washington, D. C. 20535

The various imaging and analysis features of the Scanning Electron Microscope (SEM) were outlined including a description of the comparison-mirroring adaption.

The applications presented included the comparison of fractured surfaces, toolmark comparisons, the elemental analysis of fragments and multilayered paint chips, and elemental mapping. Finally the firearms residue identification technique described by Dr. P. Jones (previous speaker) was discussed with emphasis placed on the current status of the research and what remains to be done.

PROBLEMS IN THE LABORATORY EXAMINATION OF EVIDENCE IN ARSON CASES

By Charles R. Midkiff
BATF/U. S. Treasury Dept.

I Definition of the Arson Problem - Scope

- A. Rapidly rising crime
- B. Interest Reflected by Entry of New Investigators
  1. FFA/NBS
  2. Universities e. g. Northeastern
  3. Instrument Companies

II Recognition, Collection and Evidence handling problem

- A. Better training of Investigators is needed
  1. In recognition of evidence
     a. direct evidence of arson
     b. associative evidence
  2. In chain of custody of evidence
- B. Improved Collection and Packaging
  1. Use of best material available
  2. Development of new materials

III Laboratory Examination

- A. Detection Problem
  1. Evidence is lost prior to lab examination (inconclusive results)
     a. Consumption of evidence in fire
     b. Destruction of evidence during firefighting operations

c. Improper packaging

2. Techniques are Insufficient to Insure Detection

a. Two major methods used

1) head space

2) separation

b. may not produce identifiable chromatogram

3. Background Material Inhibit Detection

a. plastics - pyrolysis produces hydrocarbons

b. wood - unsuitable for extraction

c. problems not resolved by most separation methods

1) solvent extraction

2) steam distillation

3) vacuum distillation

B Identification Problem

1. Type of Product

a. Trace levels detected may not allow effective comparison
e. g. similarity between light naphthas and gasoline vapor

b. similar products have different applications

1) charcoal lighters

composition varies from mid-range naphtha to kerosene

2) solvents

may vary from light naphtha to heavy oil types

3) fuel oil and diesel fuel

2. Brand of Product

a. Petroleum Products are produced and handled as commodities

1) producers wholesale product which is rebranded and sold

2) exchanges of finished product are common

b. Techniques proposed for brand identification are unreliable

1) gas chromatography

a) similar - does not prove same brand

b) dissimilar - does not exclude same brand

2) dye identification

a) few manufacturers and few dyes used

b) exchanges and whole saling not precluded

c) many products not dyed - unleaded gasoline

IV Conclusion

A. Laboratory role in Arson Investigation can be sizeable

1. detection of incendiary/flammable liquid

2. identification/comparison of flammable liquids

3. examination of other physical evidence

B. Limitations of Laboratory Conclusions must be recognized

1. by the expert in the laboratory

2. by the investigator in the field

3. by the judicial system e. g. inconclusive results

C. Laboratory must take an active role

1. in training of investigators

2. in development of better packaging materials

3. in improved analytical methods

New Members

New members of the Association which joined in the fall of last year are:

	Membership No.
Robert J. Radnoti Maryland State Police Crime Lab. Bldg. A Pikesville, MD 21208	149
Margret L. Stevenson 2305 Greenery Lane Apt. 204 Wheaton, MD 20906	150
Russell D. Williams D.E.A. 460 New York Ave. Washington, D.C. 20537	151
Alexander M. Stirton II Pa. State Police Box 2005 Bethlehem, PA 18001	152
James H. Crockett 5506 Chesterfield Drive Camp Springs, MD 20031	153
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Jane M. Connway Bureau of Forensic Science 401-A Colley Ave. Norfolk, VA 23507	155
James W. Barron 1137 Ramblewood Drive Annapolis, MD 21401	156
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Dr. Dennis Hardy — 163
FBI Lab, Rm. 3256
9th & Penna. Ave., N.W.
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Susan M. Carr — 164
Special Testing & Research Lab
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Since January 1, 1976 the following persons have joined the Association:

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MAAFS

MID-ATLANTIC ASSOCIATION of FORENSIC SCIENTISTS

MEMBERSHIP APPLICATION

Name and Home Address: Phone:

Occupation or Job Title:

Employer:

Business Address: Phone:

(Check preferred mailing address)

Education and Expreience (include all past employment relating to the Forensic Sciences):

Membership in Professional or Scientific Organizations:

Signature of Applicant: Date:

Proposed by: Seconded by:

Complete application in ink using block letters (or typerwriter) and forward to the Secretary-Treasurer:

Mr. Norman C. Law
6503 Stoneham Rd.
Bethesda, MD. 20034

Application fee of $2.50 (non-refundable) must accompany this application. Yearly dues of $7.50 are payable January 1st of each year.

CHANGE OF ADDRESS

If you have changed your mailing address or we have your address incorrect, please complete this form and forward it to the Secretary-Treasurer:

Mr. Norman C. Law
6503 Stoneham Rd.
Bethesda, MD. 20034

Name: _____

Previous Mailing Address:	Present Mailing Address:
_____	_____
_____	_____
_____	_____
_____	_____

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