



2010 MAAFS

**PENN STATE UNIVERSITY
UNIVERSITY PARK, PA**

May 17—21, 2010



PerkinElmer®
For the Better

MAAFS Meeting Planning Committee

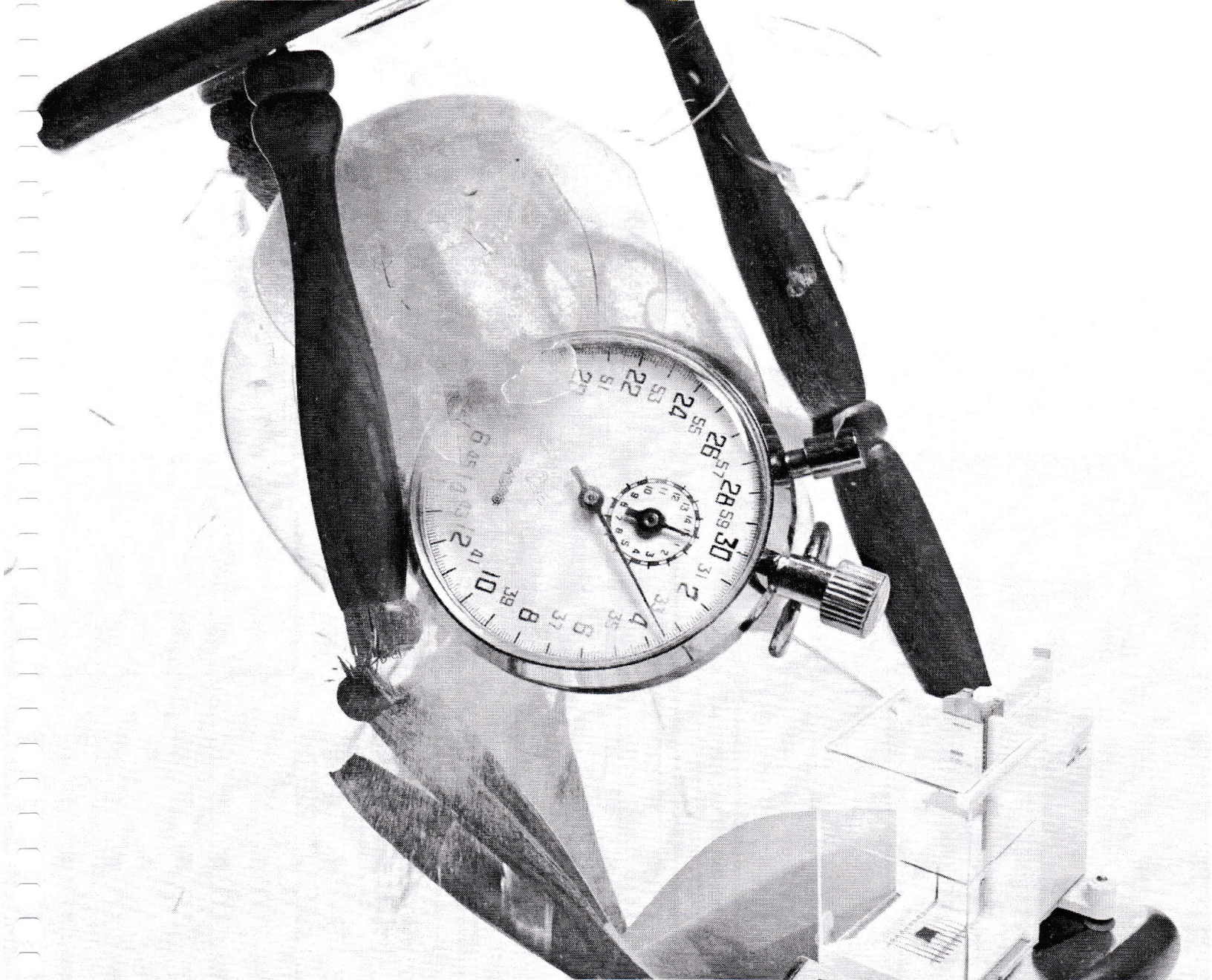
Cassandra Padula Burke, <i>Chair</i>	Baltimore County Police Department
Chris Arrotti	Pennsylvania State Police
Debbie Campbell	U.S. Postal Service
Cristy Kissel	Independent Forensic Contractor
Jodi Zane	DNA Security Inc. Laboratory
Cheri McConnell, <i>2010 Local Contact</i>	Penn State University

MAAFS Executive Committee

Gregg Mokrzycki, <i>President</i>	Federal Bureau of Investigation
Chris Arrotti, <i>Past President</i>	Pennsylvania State Police
Chuck Heurich, <i>President Elect</i>	National Institute of Justice
Robyn Quinn, <i>Secretary</i>	DE Office of the Chief Medical Examiner
Richard Gervasoni, <i>Treasurer</i>	Montgomery County Crime Laboratory (retired)
Cassandra Burke, <i>Communications</i>	Baltimore County Police Department
Jennifer Badger, <i>Communications (incoming)</i>	Pennsylvania State Police
Elana Foster, <i>Member - at - Large</i>	RJ Lee Group
Sarah Chenoweth, <i>Biology Chair</i>	Anne Arundel County Police
Sandy Hartsock, <i>Criminalistics Chair</i>	Maryland State Police
Pete Belcastro, <i>QD Chair</i>	Federal Bureau of Investigation

The MAAFS Meeting Planning Committee would like to thank all of the presenters, workshop instructors, volunteers and businesses that provided door prizes. These individuals and businesses are too numerous to thank individually in this space, but their work is the foundation of this meeting!

Vendors supporting MAAFS can be identified by GREEN name badge holders. Please show your support to these vendors that have contributed to the success of the MAAFS annual meeting!



A Break Through In Evidence Weight Traceability

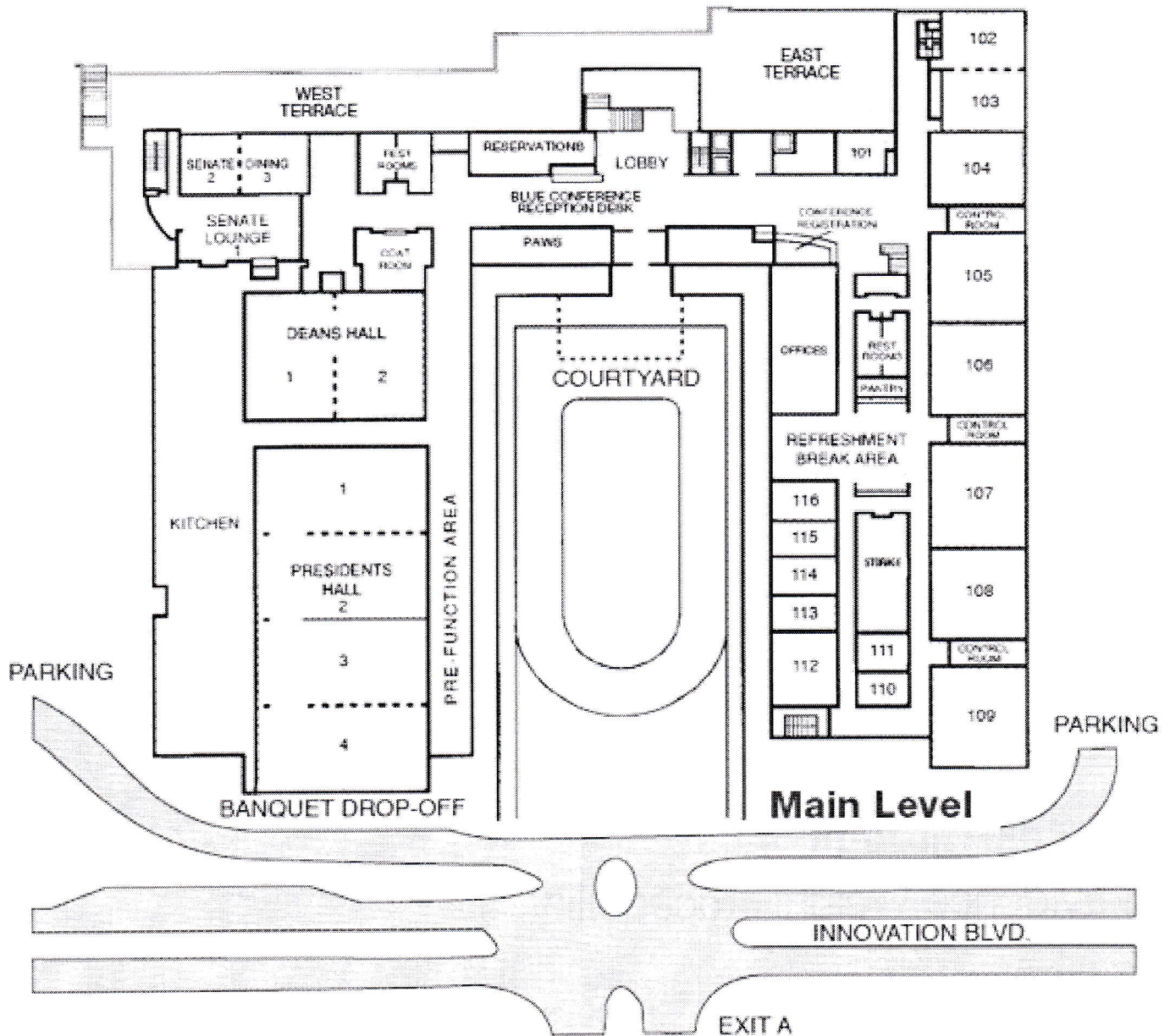
METTLER TOLEDO is introducing the all new OneClick™ Evidence Solutions powered by LabX Software to help eliminate measurement uncertainty. Shatter your concept of what it takes to weigh evidence—the traditional process of tedious calibration verification, and documenting every sample. With OneClick you accelerate the process with a balance that guides you step-by-step through your SOP with precise weighings, automatic calculations, and complete data recording.

It's about time—yours. Call 1-800-METTLER to set-up a free lab demonstration, or visit www.mt.com/one-click-weighing to see the details of a balance accelerated beyond weighing.

► www.mt.com/one-click-weighing

METTLER TOLEDO

The Penn Stater Conference Center Hotel
215 Innovation Boulevard, State college, PA
Phone 800-233-7505 Fax 814-863-5002

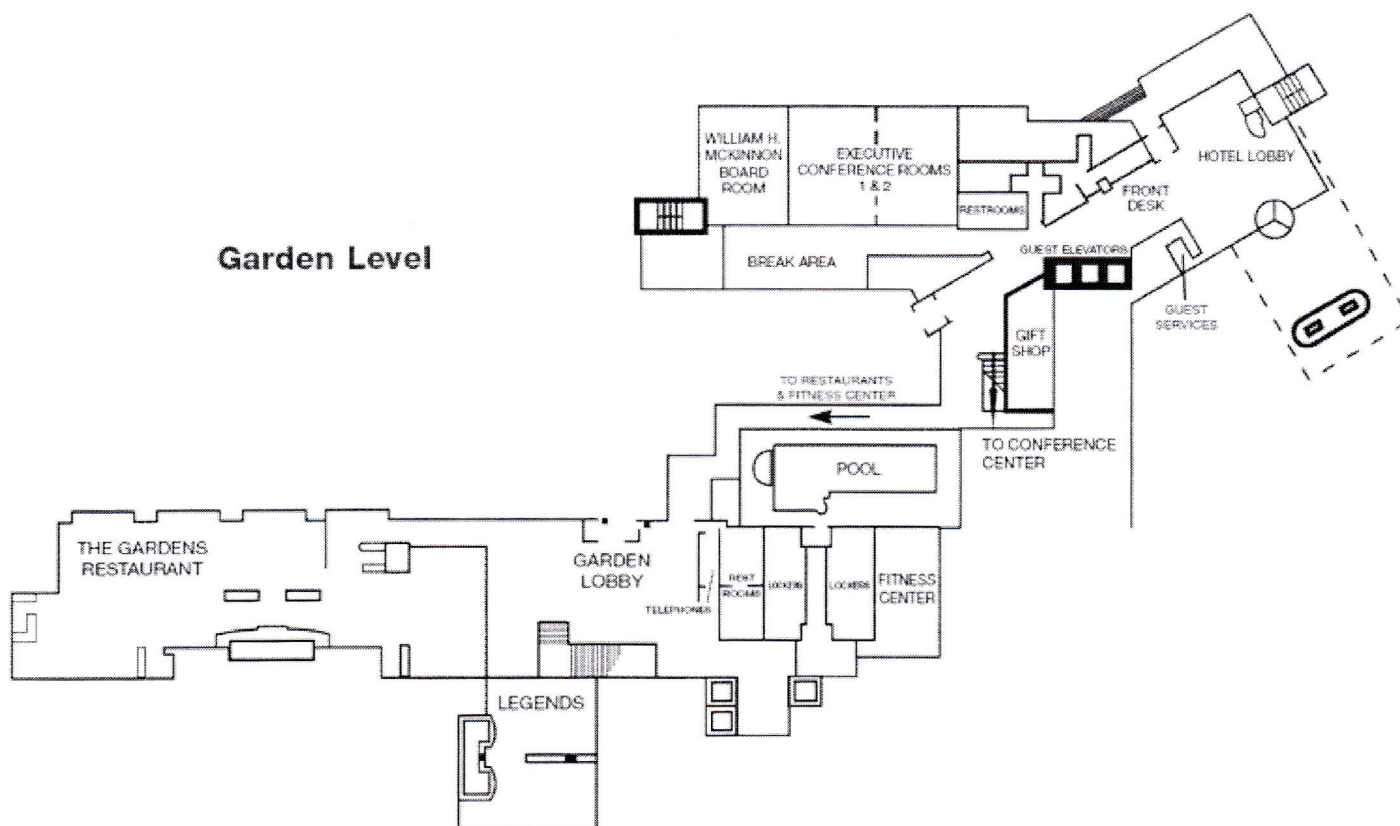


Main Level Floor Plan Key:

Registration.....**Conference Registration**
MAAFS Office.....**Room 101**
Vendors.....**Presidents Hall**
Plenary Session.....**Deans Hall**
Keynote Speaker.....**Deans Hall**
Biology Section.....**Deans Hall**

Breaks.....**Presidents Hall**
FLEX Breakfast.....**Senate Lounge**
Wine and Cheese.....**Presidents Hall**
Vendor Reception.....**Senate Lounge**
Business Meeting.....**Deans Hall**
Fire Debris Roundtable.....**Room 105**
Tailgate Gala.....**Courtyard**

Garden Level



TO GUEST ROOMS

Garden and Second Level Floor Plan Key:

Breakfast.....The Garden Restaurant
Lunch.....The Garden Restaurant
Criminalistics Section.....Room 207
QD Section.....Room 208
BreaksRefreshment Break Area

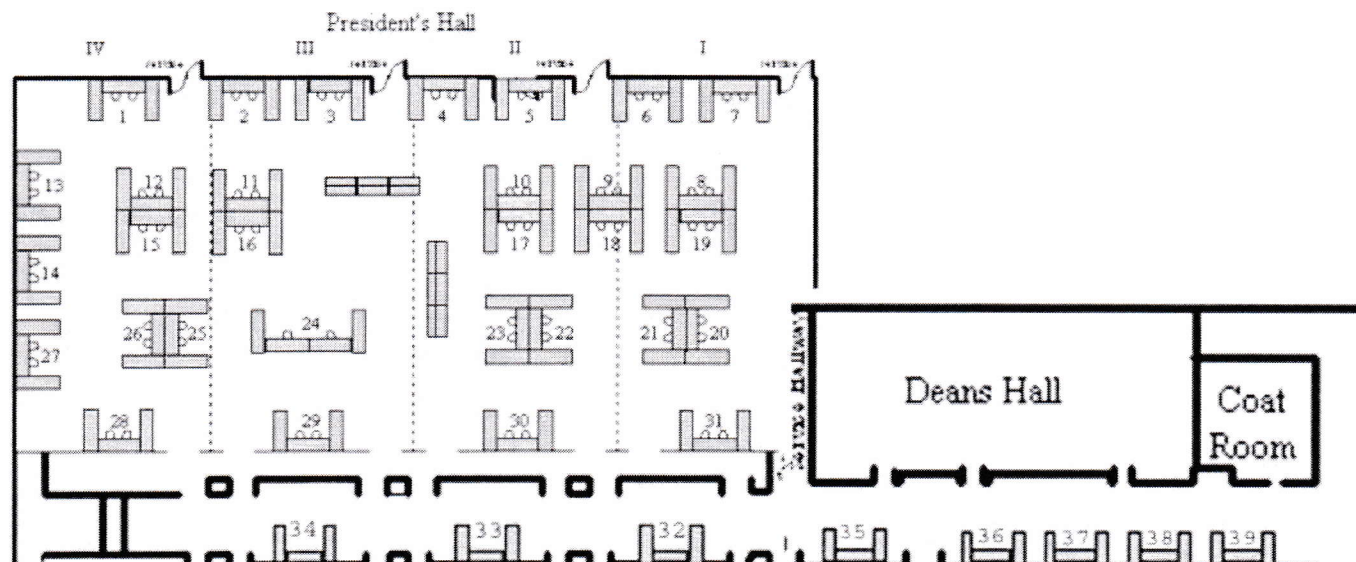
Second Level



Workshop Locations:

DNA Mixtures.....Willard (064 & 358)
Digital SLR Photography.....Wartik (106)/Pine Cottage
How Things Break.....Room 105/Whitmore (333)
BPA for Bench Analyst.....Room 105/Spruce Cottage
GC Structural Elucidation.....Room 108
Firearm SafetyHotel Lobby
Wall Graphity/Mirror Writing..... Spruce Cottage
Appleton Paper Mill Tour..... Hotel Lobby
LC-MS/MS..... Thomas (119)/Whitmore (330)
ABC Exam.....Room 116
Breaks.....Refreshment Break Area/Campus

Solicitation of sales by vendors not represented at this conference is prohibited within the vendor and meeting areas unless registered as a supporting vendor for the 2010 MAAFS annual meeting.



1. Zeek Co.

4758 Ridge Road #285
Brooklyn, OH 44144
216-856-1405

www.zeekco.com

2. Softgenetics

100 Oakwood Ave. Suite 350
State College, PA 16803
888-791-1270

www.softgenetics.com

3. Waters Corporation

34 Maple Street
Milford, MA 01757
800-252-4752

www.waters.com

4. ChemImage Corporation

7301 Penn Avenue
Pittsburgh, PA 15208
412-241-7335

info@chemimage.com

5. Miele

9 Independence Way
Princeton, NJ 08540
(800) 991-9380

www.labwashers.com

6. Whatman, Inc.

200 Park Avenue, Suite 210
Florham Park, NJ. 07932
973-245-8300

www.whatman.com

7. Qiagen

27220 Turnberry Lane, Suite 200
Valencia, CA 91355
800-426-8157

www.qiagen.com

8. Savillex Corp.

6133 Baker Road
Minnetonka, MN 55345
952-935-4100

www.savillex.com

9. Aegis Labs

515 Great Circle Road
Nashville, TN 37228
615-255-2400

www.info@aeigislabs.com

10. STaCSDNA

10605 Barn Swallow Ct
Fairfax, VA 22032
877-774-7822

www.stacsdna.com

11. ESCO

2940 Turnpike Drive, Units 15-16
Hatboro, PA 19040
877-479-3726

www.escoglobal.com

12. Varian Inc.

3120 Hansen Way
Palo Alto, CA 94304-1030
650-213-8000

www.varianinc.com

13. Independent Forensics

4600 Roosevelt Road
Hillside, IL 60162
866-434-2400

www.ifi-test.com

14. Mettler-Toledo

1900 Polaris Parkway
Columbus, OH 43240
800 METTLER

us.mt.com

15. Leica Microsystems USA

2345 Waukegan Road
Bannockburn, IL 60015
800-248-0123

www.leica-microsystems.us

16. Kubtech

270 Rowe Avenue, Unit E
Milford, CT 06460
203-364-8544

www.kubtech.com

17. Agilent Technologies

395 Page Mill Rd.
Palo Alto, CA 94306
302.633.8264

www.agilent.com

18. Leeds Forensic Systems

800 Boone Ave. North
Minneapolis, MN 55427
800-444-5333

www.leedsforensics.com

19. BRT Laboratories Inc.

400 W. Franklin Street
Baltimore, MD 21201
410-649-9607

www.brtlabs.com

20. AB/SCIEX

353 Hatch Drive
Foster City, CA 94404
800-952-4716

www.absciex.com

21. Sorenson Forensics

2495 South West Temple
Salt Lake City, UT 84115
888-488-1122

www.sorensonforensics.com

22. Restek

110 Benner Circle
Bellefonte, PA 16823
800-356-1688

www.restek.com

23. Mitotyping Technologies

2565 Park Center Blvd. S. 200
State College, Pennsylvania, USA
16801
(814) 861-0676

www.mitotyping.com

24. Perkin Elmer LAS

710 Bridgeport Avenue
Shelton, CT 06484-4794
800-762-4000

las.perkinelmer.com

25. Foster & Freeman USA, Inc.
46030 Manekin Plaza, S. 170
Sterling, VA 20166
888 445 5048
www.fosterfreeman.com

26. Promega Corporation
2800 Woods Hollow Road
Madison, WI 53711
800-356-9526
www.promega.com

27. The Computer Solution Corp.
1525 Huguenot Road
Midlothian, VA 23113
804.794.3491
www.fcsc.com

28. Biotage
10430 Harris Oaks Blvd. Suite C
Charlotte, NC 28269
800-446-4752
www.biotage.com

29. Brucker
302-836-9066
ma@brucker-biospin.com
www.brucker.com

30. Thermo Fisher
81 Wyman Street
Waltham, MA 02454
800-678-5599
www.thermo.com

31. Forensics Source
13386 International Pkwy
Jacksonville, FL 32218
800-852-0300
www.forensicssource.com

32. RJ Lee Group
350 Hochberg Road
Monroeville, PA 15146
(724) 325-1776
www.rjlq.com

33. Applied Biosystems
850 Lincoln Centre Drive
Foster City, CA 94404
800-327-3002
www.appliedbiosystems.com

34. National Institute of Justice
2277 Research Blvd.
Rockville, MD 20850
1-800-851-3420
<http://www.ojp.usdoj.gov>

35. STReamline Innovations
132 Bhame Lane
Harmony, PA 16037
724-504-8240
streamlinedna@aol.com

36. Shimadzu
7102 Riverwood Drive
Columbia, MD 21046
800-477-1227
www.ssi.shimadzu.com

37. Troemner
201 Wolf Drive
Thorofare, NJ 08086
800-352-7705
www.troemner.com

38. Fairfax Identify Labs
601 Biotech Drive
Richmond, VA 23235
800-735-9224
www.fairfaxidlab.com

39. OPEN

We Stand Behind Your Lab Testing.

Our expertly engineered laboratory glassware washers are designed and tested to outlast the competition. We also ensure our results so you can successfully deliver yours.

Call for a free quote and ask about our cleaning guarantee.

☎ 800.991.9380
✉ proinfo@mieleusa.com
🌐 labwasher.com

Miele
PROFESSIONAL

Sunday, May 16th

5:00-8:00 pm	Registration	Conference Registration
--------------	--------------	-------------------------

Monday, May 17th

7:00 – 5:00	Registration	Conference Registration
-------------	--------------	-------------------------

7:00- 8:00	Breakfast (ticket required)	The Gardens Restaurant
-------------------	------------------------------------	------------------------

8:00 – 5:00	How Things Break Digital SLR Photography DNA Mixtures LC-MS/MS	105/Whitmore (333) Wartik (106)/Pine Cottage Willard (064 & 358) Thomas (119)/Whitmore (330)
-------------	---	---

10:00 – 10:15	Break with Refreshments	Refreshment Break Area/Campus
----------------------	--------------------------------	-------------------------------

Noon – 1:00	Lunch (ticket required) <i>Sponsored by Applied Biosystems</i>	The Gardens Restaurant/Campus
--------------------	--	-------------------------------

3:00 – 3:15	Break with Refreshments	Refreshment Break Area/Campus
--------------------	--------------------------------	-------------------------------

5:00	Dinner (on your own)	
-------------	-----------------------------	--

6:00	Executive Board Meeting	
------	-------------------------	--

Tuesday, May 18th

7:00 – 5:00	Registration	Conference Registration
-------------	--------------	-------------------------

7:00-8:00	Breakfast (ticket required)	The Gardens Restaurant
------------------	------------------------------------	------------------------

8:00 – 5:00	Digital SLR Photography DNA Mixtures BPA for Bench Analyst GC Structural Elucidation	Wartik (106)/Pine Cottage Willard (064 & 358) 105/Spruce Cottage 108
-------------	---	---

8:00—noon	LC-MS/MS Firearms Safety	Whitmore (330) Lobby (9:45am)
-----------	-----------------------------	----------------------------------

Noon – 1:00	Lunch (ticket required) <i>Sponsored by Applied Biosystems</i>	The Gardens Restaurant/Campus
--------------------	--	-------------------------------

Tuesday, May 18th (continued)

1:00—4:00	ABC Exam	116
1:00—5:00	Wall Graphity/Mirror Writing	Spruce Cottage
3:00 – 3:15	Break with Refreshments	Refreshment Break Area/Campus
4:30	Altoona Curves Baseball Game <i>Requires pre-registration, transportation provided</i> <i>Sponsored by Qiagen</i>	Lobby
5:00	Dinner (on your own)	

Wednesday, May 19th

7:00 – 5:00	Registration	Conference Registration
7:00 – 8:00	Breakfast (ticket required)	The Gardens Restaurant
8:00 – 4:30	Plenary Session Appleton Paper Mill Your	Deans Hall Lobby (7:45am)
10:00 – 10:15	Break with Refreshments	Refreshment Break Area
11:30 – 1:00	Lunch (ticket required)	The Gardens Restaurant
3:00 – 3:15	Break with Refreshments <i>Sponsored by Abacus</i>	Refreshment Break Area
5:00 – 7:00	Wine & Cheese Welcoming Reception <i>Sponsored by MitoTyping</i>	Presidents Hall
7:00 – 8:30	Dinner (on your own)	
7:00 – 8:00	Vendor Reception <i>Reception for Vendors, MAAFS Executive Board & Meeting Committee</i>	Senate Lounge
8:15pm – 1:15am	Penn State Bar Crawl <i>Requires pre-registration, transportation provided and will depart at 8:30</i>	Lobby

Thursday, May 20th

7:00 – 5:00	Registration	Conference Registration
7:30 – 8:30	Breakfast (ticket required)	The Garden Restaurant
7:30 – 8:30	FLEX Breakfast (<i>pre-registration required</i>) <i>Sponsored by Penn State</i>	Senate Lounge
7:30 – 5:00	Vendor Area (<i>Please visit the vendors</i>)	Presidents Hall
8:30 – 11:00	Criminalistics Session Biology Session Questioned Document Session	207 Deans Hall 208
10:00 – 10:15	Break with Refreshments (<i>Please visit the vendors</i>) <i>Sponsored by ChemImage</i>	Presidents Hall
11:00 – 12:00	Keynote Speaker – Agent George Piro, FBI	Deans Hall
12:00- 1:30 pm	Lunch (ticket required)	The Gardens Restaurant
1:30 – 4:30	Criminalistics Session Biology Session Questioned Documents Session	207 Deans Hall 208
1:30 – 4:00	Fire Debris Roundtable	105
3:00 – 3:15	Break with Refreshments (<i>Please visit the vendors</i>)	Presidents Hall
5:30 – 7:00	Business Meeting	Deans Hall
7:00 – 8:30	Dinner (on your own)	
8:30-2:00	Tailgate Gala <i>Sponsored by Perkin Elmer</i> <i>Dress in your favorite team colors for a chance to win a prize</i>	Courtyard

Friday, May 21st

7:30 – 8:30	Breakfast (ticket required)	The Garden Restaurant
7:30 – Noon	Vendor Area <i>(Please visit the vendors)</i>	Presidents Hall
8:30 – Noon	Criminalistics Session	207
	Biology Session	Deans Hall
	Questioned Documents Session	208
10:00 – 10:15	Break with Refreshments <i>(Please visit the vendors)</i>	Presidents Hall
12:00 – 1:00	Door Prizes <i>Don't forget to recycle your badge holders</i>	Presidents Hall

○ **Transportation for workshops scheduled on campus (Whitmore, Wartik, Pine Cottage, Spruce Cottage, Willard, Thomas) will be provided utilizing campus shuttle buses. Workshop Participants should utilize the stop outside of President's Hall. Shuttle buses begin at 4:45 am and run every 20-23 minutes. Participants should allow 30 minutes to get to their locations. Campus guides will be at the shuttle stop at 7:15am and 7:30am to assist participants to their locations.**

○ **Workshop and General Meeting Evaluations are now available online and can be completed from the cybercafé or after the meeting at www.MAAFS.org. Please help plan next year's meeting by completing the evaluations!!**

Criminalistics Sessions

207

- Thursday
- 8:45 Quantitative Study of Endocrine Disruptor Migration from Polyethylene Terephthalate
 - 9:10 Measuring the Value and Benefits of Automating a Forensic Laboratory: Case Study Metrics from North Carolina State Bureau of Investigation
 - 9:35 Development of a Method for Detecting Papain in Adulterated Urine Samples
 - 10:20 Levamisole in Cocaine Causing Health Concerns Among Cocaine Users
 - 10:35 SWGDRUG Update 2010
 - 2:00 A Night of Chaos and the Reconstruction of a Homicide Scene
 - 3:15 Plastic Model Production of Crime Scenes Using 3D Imaging
 - 3:40 The analysis and identification of cadaveric VOCs using gc/ms and spme to develop a chemical profile to determine the interval since death"
 - 4:05 The Exam. of Physical Evid. Using Raman Spectroscopy: overview & case examples
 - 4:40 Recognition and Documentation of Injuries in Child Abuse Cases
- Friday
- 8:30 ASTEE Introduction and Update
 - 8:55 Characterization and Ident. of Nylon Fibers Using a Custom-Built Py-GCMS System
 - 9:30 Target Compound Ratio and Chemometric Analyses for the Individualization of Neat Ignitable Liquids and Residues from Fire Debris.
 - 9:55 Identification of Fingerprint Topology Using Dense Columnar Thin Films
 - 10:30 Incorporation of Solid-Phase Micro-Extraction and Fluorescence Quenching Nitroaromatic Explosive Detection for the Advancement of Homeland Security
 - 10:55 GWP- Good Weighing Practices - Minimizing Measurement Uncertainty
 - 11:15 Strengthening Forensic Science Education
 - 11:40 Statistics and Probability in Forensic Science

Forensic Biology Sessions

Deans Hall

- Thursday
- 8:30 Phenotypic Differentiation of *Bacillus cereus* T-strain (*BcT*) Spores from Alternate Medium Formulations Using Fatty Acid Composition
 - 9:05 Lost, Found, and Lost Again: The Continuing Mystery of Everett Ruess
 - 9:30 The Correlation of Serum Stress Hormone Levels With the Cause and Circum. of Death
 - 10:15 Roundtable Discussion: Interesting, Unusual, or Quirky Cases
 - 1:30 Generating DNA Profiles from Washed Bloodstains
 - 2:00 Extraction Methods for Recovering Touch DNA With the Use of Optical Enhancement
 - 2:30 Optimization of the Biomek NX Laboratory Automation Workstation for Use With Forensic Samples
 - 3:15 Driftcon® Validation Study
 - 3:40 Comparison of Thermal Cyclers and the Amplification Kits to Assess the Analysis of Low Copy Number DNA
 - 3:55 Comparison of PowerPlex® 16 GS to Minifiler® and Identifier® Amplification Kits

- Friday**
- 8:30 Mixture Analysis of Short Tandem Repeat (STRs) Data Using GeneMarker® HID
 - 8:55 Testing & Implementation of New Technology. Case Study and Example.
New Technologies: Quick Survey of Sperm Detection and Isolation Projects
 - 9:20 DNA Extraction Efficiency: Is it what you thought?
 - 9:45 Automation Efforts of the Federal DNA Database Unit
 - 10:15 Chelex-HY Screening: A rapid and sensitive technique for the detection of male DNA
 - 10:40 Next Generation Sequencing of For. DNA Loci Using 454 Life Sciences Technology
 - 11:15 Applied Biosystems Product Update: Targeted Tools for Efficient Forensic Analysis

Questioned Documents Sessions

208

- Thursday**
- 8:30 Responses To A Survey On Changes In Writing Ability After Brain Injury
 - 8:55 Fraudulent California Driver's Licenses
 - 9:20 The Ident. Of Indented Writing In The Murder Of Riley Ann "Baby Grace" Sawyers
 - 10:20 Stolen Valor: Military Form DD214
 - 1:30 Comparing Fracture Matches Via SEM After Chemical Processing For Latent Prints
 - 1:55 How Do You Do Voodoo Exemplars?
 - 2:20 Missing Examination Documentation: An Expert Witness's Nightmare
 - 2:45 Covert-Print Writing Apparatus And Authentication Method
 - 3:20 Sports Card Document Problem – Is One Piece Of Evidence Enough?
 - 3:45 One Suicide Note, Two Writers: A Discussion of the 2009 CTS Proficiency Test For Handwriting
- Friday**
- 8:30 Hyperspectral Imaging For Forensic Document Examination
 - 9:05 The Autopen: A Forger's Dream or Examiner's Headache?
 - 9:30 ICITAP Forensic Services
 - 10:15 The Danger Is In The Data – Protecting Variable Information On Birth Records
 - 10:30 Fall Workshop Overview – Fraudulent Identity Documents

Target body fluids and fluorescent evidence with the **Crime-lite[®] ML**

Built for the detection of fluorescent evidence, the **Crime-lite ML** is fitted with 16 x 5W LEDs, emitting intense blue light capable of exciting fluorescence from the slightest traces of body fluids.

In addition to blue LEDs, the bench top mounted **Crime-lite ML** is fitted with white light for general examinations. Long reach and an articulated arm make it ideal for examining clothing, bed linen and other crime scene materials.

Revealing fluorescent evidence using blue light is considered just as effective as ultraviolet and is generally preferred by examiners due to less harmful effects (frequent exposure to ultraviolet light is now regarded as a serious health risk by most authorities).

FEATURES:

- **Safe, high intensity blue light for detecting fluorescent evidence, plus...**
- **High intensity, variable white light**
- **Large bi-ocular magnifying lens**
- **Long reach articulated arm**
- **Fan cooling for comfort**

The **Crime-lite ML** is also practical for day-to-day use with an easy-to-clean touch sensitive glass control panel and a forced air cooling system for prolonged use and operator comfort.

For more information on Foster & Freeman technology visit **www.fosterfreeman.com**

Or e-mail Dave Tobin at... **usoffice.fosterfreeman.com**

foster+freeman

Foster & Freeman USA Inc.
46030 Manekin Plaza, Suite 170
Sterling, VA 20166, USA

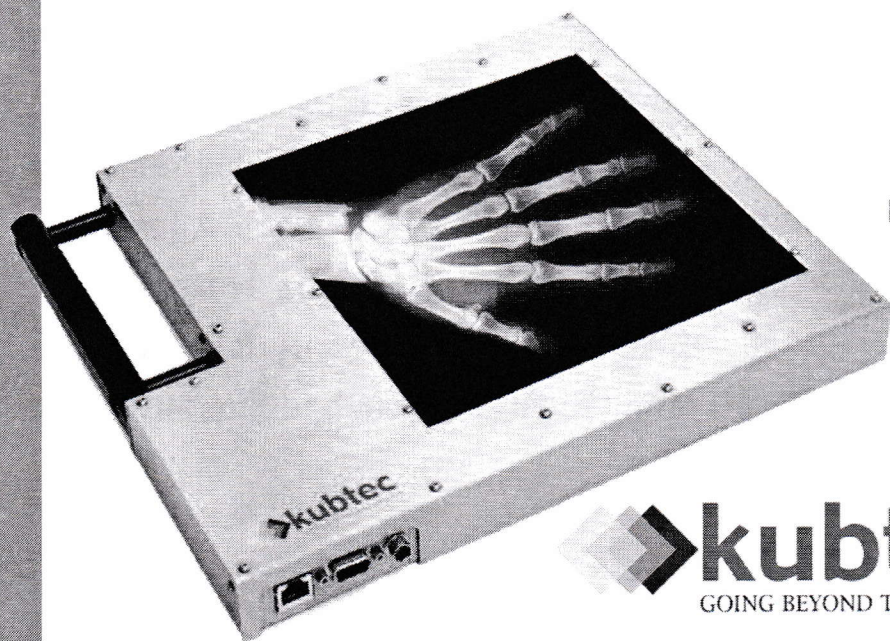
Tel: 888 445 5048 Fax: 888 445 5049



EVIDENCE ANALYSIS WHERE & WHEN YOU NEED IT

WHETHER YOU'RE PROCESSING CRIME SCENE EVIDENCE OR ANALYZING MATERIAL IN A LAB SETTING, THE ULTRA-PORTABLE **DIGIVIEW 200** X-RAY DETECTOR SYSTEM PROVIDES THE HIGHEST QUALITY AND FLEXIBILITY REQUIRED FOR FORENSIC INVESTIGATION.

- Image body parts, spatter patterns, latent fingerprints or suspicious packages
- Compatible with most portable x-ray systems
- 96 micron pixel size - the highest resolution available
- Compact 8x8" size with the ability to capture and analyze images instantly!
- Includes laptop with x-ray imaging software and image analysis tools



ASK ABOUT OUR
XTEND HF LINE
OF FIELD-RUGGED
PORTABLE X-RAY SYSTEMS



 **kubtec**
GOING BEYOND THE SURFACE

203.364.8544
WWW.KUBTEC.COM

Agent George Piro

Federal Bureau of Investigation

Only five years out of the FBI Academy, Agent George Piro received his most challenging assignment--to be Saddam Hussein's sole American interrogator. Agent Piro received the job, in part, because of his fluency in Arabic and his familiarity with Middle Eastern culture (having been born and raised in Lebanon). American strategists also thought Hussein would best associate with a young, aspiring man. The ruse worked; the



constant emotional strain and control broke Saddam Hussein, and he poured out revealing information about the invasion of Kuwait, the war with the United States, and weapons of mass destruction. Agent Piro was Hussein's sole contact and this made for almost surreal events, such as on the dictator's birthday, when Agent Piro delivered cookies made by his mother or when Piro would listen as Hussein read him the poetry that he had written while in captivity. Agent Piro will delve into the mind of the dictator, and explain how an FBI street agent became Saddam Hussein's handler.

RECYCLE

YOUR BADGE HOLDERS YOU MIGHT WIN A PRIZE !!!!!

Five Special Raffles will be held during the Door Prizes on Friday.

If you return your badge holder to the Registration Desk before Friday
or

If you return your badge holder to the Meeting Planning Committee on Friday
when final Door Prizes begin,

you will receive a special Door Prize ticket!

These door prize tickets are good only for the Recycled Badge Holder Door Prizes.

**MAAFS is committed to Eco-Friendly practices.
Please help us by Recycling your Badge Holders for use at future meetings.**

Additional Eco-friendly notices:

Recycling Receptacles are located throughout the Penn Stater.
Please recycle your products into the appropriate receptacles.

The Penn Stater and MAAFS are proud to offer Bio-degradable food containers during the
Lunch Buffets at the hotel.

If you wish to enjoy your lunch in the outdoors or in a location outside the restaurant, please
feel free to grab one of these containers.

They can be recycled in the appropriate receptacles located throughout the hotel.

**Thanks for your commitment to our environment
and
to helping MAAFS support Eco-friendly practices.**

How Things Break (and How to Put Them Back Together Again)

Amy L. Michaud, ATF, Maureen C. Bottrell, FBI, Sandra Hartsock, Maryland State Police

Brought to you from the 2009 Trace Symposium, this whole day general-level workshop will discuss, in the morning session, the theory and applications of fractography to brittle and ductile materials frequently encountered in forensic casework. Interpretation and reporting of results will also be discussed. The afternoon session will be fun filled with hands-on physical matching exercises utilizing various media to show applications of this theory.

Appleton Paper Mill Tour

This full day workshop will be held at the Appleton Paper Mill and will be comprised of a lecture/classroom presentation in the morning and a tour of the facility in the afternoon. This presentation will be geared to trace examiners and address issues and concerns associated with paper examinations in the field to include security and carbonless papers. The tour will provide trace examiners with an understanding of the manufacturing processes of paper from wood chips to paper rolls. Several representatives from the mill will be available throughout the day to address any questions or concerns.

Forensic Toxicology Applications of LC-MS/MS

Dan Sykes, PhD, Penn State University, Matthew Clabaugh, Applied Biosystems

For many years, GC-MS has been the gold standard in drug analysis. Unfortunately, a number of factors influence the applicability of this technique for rapid screening: extensive sample clean-up procedures, derivatization of low volatility analytes, and long run times. Within the last five years, LC-MS has replaced GC as the method of choice for many drug screening applications. A review of the toxicological literature indicates that LC-MS accounts for approximately half of all publications concerning drug analysis.

The lab session will serve to allow the students hands on experience with a LCMSMS system is run in a number of modes. To demonstrate the sensitivity of LCMSMS the students will run a mixture of drugs on the 3200QTRAP as a single quad (full scan and SIM), as well as a triple quad, ion trap and hybrid Triple/Trap mode. The standard will then be diluted to a point at which is cannot be seen when run as a single quad but can easily be seen as a triple or QTRAP in order to demonstrate the sensitivity and selectivity MSMS.

Advance Structure Elucidation

Bob Ollis, US Army Crime Lab

Previous workshops on structure elucidation have focuses on the technologies, capabilities, and calibration of GC/MS, LC/MS, IR, Raman, and NMR systems. This workshop will focus on spectral interpretation of these technologies that will help the attendee when the unknown spectrum is encountered in case work. It is recommended that before this workshop each attendee review the basics of the systems above as the workshop will focus solely on the spectra. This workshop will consist of brief periods of lecture followed by hands-on group activities. Scientists from all skill levels are encouraged to attend.

DNA Mixture Interpretation

Mitch Holland, Director, Department of Chemistry and Forensic Sciences Program, Penn State Univ.

Interpreting mixtures is an increasing challenge as low-level mixtures become more common. This two-day workshop will discuss both routine and complex mixtures, including different statistical calculations and approaches.

Digital SLR Photography for the Laboratory Analyst

Bob Shaler, Department of Chemistry and Forensic Sciences Program, Penn State University

Bring that snazzy digital SLR or high-end digital point-and-shoot camera you have in your laboratory to this two-day workshop on how to get the most out of your camera. For the novice to intermediate photographer working in a laboratory who would like to boost their understanding of digital photography and how to better photograph evidence.

Basic Firearm Safety, Patton Township Police Department

Civilian analysts often have occasion to handle firearms when processing evidence for serology, latent print, and DNA analyses. This introduction to the most commonly encountered types of firearms, ammunition, and "less lethal" weapons will also address proper terminology and safe handling techniques.

Blood Spatter Interpretation for the DNA Analyst, David San Pietro, Westchester County Lab

Blood pattern analysis can be a powerful tool for those in the laboratory, not only those who respond to crime scenes. For the forensic analyst who encounters bloodstains on evidence submitted to the laboratory, this workshop includes a half day of classroom instruction and a half day of demonstrations in one of Penn State's crime scene houses.

Wall/Mirror Writing, Peter Belcastro and Gregg Mokrzycki, Federal Bureau of Investigation

This half day workshop will be held in the crime scene house at Penn State University and will focus on the fundamental concepts of writing on unusual surfaces such as walls and mirrors. This fundamental workshop was developed for document examiner trainees, recently certified document examiners, and those examiners with limited experience with these types of examinations. Instruction and discussion will cover the collection of known samples in such scenarios, limitations associated with these types of writings, collection and preservation of the evidence, and issues concerning photography of the questioned writing. In addition, attendees will be given several practical problems and asked to conduct examinations and present their findings in a group setting.

ABC Exam

Certification is a voluntary process of peer review by which a practitioner is recognized as having attained the professional qualifications necessary to practice in one or more disciplines of criminalistics. The ABC offers a certificate in criminalistics, as well as in the specialty disciplines of forensic biology, drug chemistry, fire debris analysis, and trace evidence.

Plenary Sessions

Learning the Language of ISO 17025

Anja Einseln, ASCLD/LAB; Robert Ollis, USACIL

As many laboratories begin their transition from ASCLD/LAB Legacy to the ASCLD/LAB International program there may be some moaning and groaning and then the whisper campaign begins. There are quite a few myths that start flying around the lab when laboratory management communicates that “the laboratory will need to start preparing for ISO 17025.” Some people start looking at their retirement schedule, others start reading ISO 17025 along with a highlighter and sticky notes. During my presentation I hope to share with you what ISO 17025 can bring to your laboratory to help you, your work and your laboratory. The journey for some labs may be one of minor adjustments and modifications, for other labs it may be taking on a new way of thinking and communicating, and for yet other labs the process may seem overwhelming and burdensome due to the requirements of “documenting” a management system. Regardless of where your journey begins, I plan to address each of these areas and will also have the pleasure of having a representative from one of the labs that is actively moving toward becoming accredited to the ASCLD/LAB International program share their experiences and progress. We hope that jointly we will provide some clarity, some direction and guidance on how to prepare for the transition.

Estimating the Uncertainty of Measurements in the Modern Forensic Lab: Compliance with ISO 17025 *Robert Ollis, USACIL*

As ISO accreditation gains more significance to forensic science many laboratories are faced with the seemingly daunting task of determining Measurement Uncertainty (MU). This workshop will demonstrate how to establish a program to determine and monitor measurement uncertainty in any discipline in forensic science. Included will be discussions of basic statistics, reporting measurement uncertainty, estimates of measurement uncertainty not based on rigid metrological determinations, and how measurement uncertainty affects the customer. This hands-on, no-nonsense approach to the application of the ISO standard will help the attendee realize that going ISO is easier than previously thought.

From Fire to Fundamentals: Highlighting NIJ’s General Forensics Research Portfolio *Danielle McLeod-Henning, National Institute of Justice*

The National Institute of Justice (NIJ) is the research, development, and evaluation agency of the U.S. Department of Justice and NIJ’s mission is to advance scientific research and development to enhance the administration of justice and public safety. The Office of Investigative and Forensics Sciences (OIFS) of NIJ is tasked to advance forensic science by providing grants for research and development in all forensic disciplines. This presentation will highlight the General Forensics (non-DNA) R&D Portfolio, including recent research objectives focusing on Fundamental Research to Address the Accuracy, Reliability, and Measurement Validity of Forensic Science Disciplines; R&D in Crime Scene and Medicolegal Investigations; R&D on Instrumental Analysis for Forensic Applications; and R&D on Pattern and Impression Evidence. Furthermore, this presentation will discuss how NIJ identifies and addresses the research needs of the forensic practitioner community, and forthcoming community outreach activities including the Impression and Pattern Evidence Symposium and Technology Transition Workshops.

Criminalistics Sessions

Study of the Effects of pH, Temperature, and Time on the Migration of Endocrine Disrupting Compounds from Polyethylene Terephthalate Bottles

Sara E. Smith & Dan G. Sykes, Ph.D, Department of Forensic Science, Pennsylvania State Univ.*

Several toxicological studies have shown that many common endocrine disrupting compounds (EDCs), specifically those that display estrogenic properties, could cause toxicity from chronic exposure to levels as low as 20 µg/kg/day. Any compound that has the ability to alter hormonal homeostasis is considered to be an endocrine disrupting compound. Effects of exposure include abnormal cell growth, teratogenicity, liver injury, abnormal thyroid function, and reproductive toxicity. Two types of EDCs, alkylphenols and phthalates, have been found to migrate from polyethylene terephthalate (PET) containers into the food supply. Recent studies have suggested that phthalates may have a cumulative effect, which has lead to a great interest in studying their presence in the environment. The specific compounds that have been studied include: dimethyl phthalate (DMP), dimethyl terephthalate (DMT), diethyl phthalate (DEP), dibutyl phthalate (DBP), butyl benzyl phthalate (BBP), bis-(2-ethylhexyl) phthalate (DEHP), nonylphenol (NP), and octylphenol (OP).

Measuring the Value and Benefits of Automating a Forensic Laboratory: Case Study Metrics from North Carolina State Bureau of Investigation

Peter J. Natale, Forensic Advantage Systems of Virginia

This presentation provides detailed information on the best practice methodologies and processes used for comparing and measuring the value of automating laboratory operations as compared to paper-based and other traditional processes. The focus of the study presents practical guidance and tools used to analyze the benefits of understanding the throughput of case loads, reduction of operational costs, increased visibility across lab disciplines and improved reporting capabilities. The quantitative values defined in the research culminate in the overarching goal of collecting accurate statistical data that can be applied to effective operational management as well as grants and other funding opportunities. Based largely on a case study from **North Carolina's State Bureau of Investigation** the specific information includes the decision process, criteria setting, technology selection, implementation issues, and the effects upon the laboratory metrics. The session will also highlight the importance of ensuring data security, accuracy and the engagement of all lab members, management and staff, who need to be aware of the critical issues that lead to making informed decisions from real time data.

Development of a Method for Detecting Papain in Adulterated Urine Samples

Marianne E. Staretz, Ph.D, and Kelsey L. Dougherty, B.S. Cedar Crest College

Papain is a novel urine adulterant being used to interfere with the common drug screening methods used in urine drug testing. In a study by Burrows *et al.*, papain was found to interfere with the analysis of some drugs and was not detected in urine using current guidelines for specimen validity testing (1). Thus, a method is needed to detect papain in urine and contribute to rendering the urine sample invalid. The current research developed an enzymatic assay for detecting papain in urine samples. Papain is a cysteine protease that has a broad specificity, cleaving peptide bonds involving basic amino acids, leucine, and glycine. Experiments examining the rate of product formation with varying papain concentrations and found that a linear relationship existed between the rate of product formation and concentration of papain. Unknown blind samples of papain were analyzed and were accurately determined as being either positive or negative for papain using this method.

Levamisole in Cocaine Causing Health Concerns Among Cocaine Users

Heather Hartshorn, U.S. Drug Enforcement Administration-Mid-Atlantic Laboratory

Pharmaceutical substances are commonly found in cocaine mixtures across North America. Since 2004, levamisole has been on the rise as a common adulterant in cocaine. Recently, health service units in the United States and Canada have noticed an increase in unusual health issues and deaths of cocaine users where the cocaine was found to be adulterated with levamisole.

SWGDRUG Update 2010, Linda Jackson, Virginia Department of Forensic Science

The mission of SWGDRUG is to recommend minimum standards for the forensic examination of seized drugs and to seek their international acceptance. SWGDRUG has previously published recommendations pertaining to Education and Training, Quality Assurance and Analytical Methods. These recommendations were published after seeking input from the forensic community.

The main SWGDRUG document underwent a formal review in 2009. Proposed changes to the current recommendations stemming from that review were released to the forensic science community for comment between July and December 2009. A summary of the changes to the recommendations which were approved by the core committee in January 2010 will be presented.

SWGDRUG recommendations and minutes from SWGDRUG meetings can be found on the SWGDRUG website (www.swgdrug.org). The website also provides links to resource materials which are referenced in SWGDRUG documents and a mechanism to provide comments to the core committee.

A Night of Chaos and the Reconstruction of a Homicide Scene

Jeff Kercheval, Hagerstown Police Department

This presentation discusses events surrounding the homicide of a young woman and subsequent homicide of a police officer by a single perpetrator. An evening which began at a school holiday program ended in a mobile police firefight producing multiple crime scenes and multiple victims. Real-time decisions concerning the forensic response to the evenings' events will be explained. Information concerning the crime scene reconstruction associated with the homicide of the young woman will be detailed. **Note: This presentation is graphic.**

Plastic Model Production of Crime Scenes Using 3D Imaging

Stephanie Nickolas, Pennsylvania State University

Demonstrative evidence is used in a court of law as visual aids to assist the jury in understanding the evidence presented. The extent of this understanding can be imperative to the outcome of a trial, and therefore, how the demonstrative evidence is communicated to the jury is very important. This study proposes a 3D plastic model of a crime scene that combines all three communication styles: visual, auditory, and kinesthetic. Jury members will hear testimony describing the scene, see photographs or videos, and touch the 3D plastic model that accurately depicts the scene. The successful creation of the 3D plastic models is a prototype that will allow the jury to hold the crime scene in the palm of their hands, to help their understanding the case, and aid in their ability to make a well informed decision.

The Analysis and Identification of Cadaveric VOCs Using GC/MS and SPME to Develop a Chemical Profile to Determine the Interval Since Death

Sarah Jones, The Pennsylvania State University

The identification of the volatile organic compounds (VOC) that are released from decomposing organisms provides field investigators with important forensic information. A number of studies have been done to measure the accumulation of VOCs that are produced during the early stages of human decomposition. The identification of these gases can be utilized for purposes such as victim recovery in earthquakes and the discovery of clandestine burial sites and mass grave sites.

A solvent-less collection technique, solid phase microextraction (SPME), was used to collect VOCs released during the early stages of decomposition. Once collected, the SPME fibers were analyzed using gas chromatography/mass spectrometry (GC/MS) and the compounds present were identified. A strategic goal of this research was to discover a new method in determining the interval since death and ultimately discover the chemical composition of the gases released during decomposition. The results were also studied to determine whether or not the environmental conditions had an impact on the formation and distribution of the VOCs from the body during the decomposition process.

The Examination of Physical Evidence Using Raman Spectroscopy: Overview and Case Examples, Patrick Buzzini, Forensic & Investigative Science Program, West Virginia University

There has been resurgence in Raman spectroscopy for its application in criminalistics. The Raman technique presents advantages such as its non-destructive nature, its fast analysis time, and the possibility of performing microscopical in situ analyses. In its forensic application, it is a versatile technique that covers a wide spectrum of samples such as trace evidence, illicit drugs and inks. This method allows for the measurement of the inelastic scattering of light due to the vibrational modes of a molecule when irradiated by an intense monochromatic source such as a laser. In this presentation the Raman Effect will be briefly described along with the advantages and disadvantages of the technique. Examples of its use in casework will be discussed too.

Recognition and Documentation of Injuries in Child Abuse Cases

Kimberly Clement, Montgomery County Police Department, Forensic Services Unit

This presentation will detail some of the common injuries seen in child abuse cases and describes how best to document the injuries. Common mistakes made in photodocumentation and how to avoid them will also be discussed. Several case studies will be presented to illustrate problems and solutions in the forensic examination of these vulnerable victims. **Note: This presentation is graphic.**

ASTEE Introduction and Update

Sandra Hartsock, Maryland State Police Forensic Sciences Division

The American Society of Trace Evidence Examiners (ASTEE) is a newly formed organization with the mission to encourage and disseminate ideas and information within the field of trace evidence. This presentation will introduce the MAAFS membership to this organization and their current goals and objectives.

The Characterization and Identification of Nylon Fibers Using a Custom-Built, Pre-column Flash Pyrolysis Unit Coupled with GC-MS

Dominguez, Victoria; Gettle, Melissa; Nunez, William; Sykes, Dan, Pennsylvania State University

Flash pyrolysis has proven to be a powerful tool in the analysis of natural and synthetic polymeric materials. This technique utilizes an instantaneous "flash" of heat across a sample to form volatile degradation products that, when combined with the separation and identification capabilities of GC-MS, can create a discriminatory thumbprint of the sample. Analytical pyrolysis-GC-MS (Py-GC-MS) has found considerable application in the forensic analysis and characterization of fiber evidence. Py-GC-MS has been shown to provide information about the nature of the sample that more customary methods of fiber analysis, such as fourier transform infrared spectroscopy (FTIR) and polarizing light microscopy (PLM), are incapable of distinguishing.

The focus of this study is to identify key differences in the chemical profiles of nylon 6 and nylon 6,6 that have been subjected to various matrix and surface treatments. These differences analyzed using non-discriminatory pre-column Py-GC-MS. Verification studies are also conducted using conventional FTIR analysis. Unlike previous studies, we utilize a custom-built pyrolysis unit to perform all thermal degradation functions. The total cost of this instrument is approximately \$50, whereas a commercial pyrolysis unit can cost upwards of ten thousand dollars. The principle aim of this project is to obtain unique and reproducible fiber profiles with minimal cost that are comparable to those of commercial pyrolysis instruments.

Target Compound Ratio and Chemometric Analyses for the Individualization of Neat Ignitable Liquids and Residues from Fire Debris.

J. Graham Rankin, PhD, Alexandra Bondra, BS, and Carolyn Trader, MSFS, Marshall University*

Although gasoline is the number one ignitable liquid used as an accelerant in arson cases in the United States; kerosene is number two in much of the country owing to its availability as a heating fuel. Similar products classified as middle petroleum distillates (MPD) by the American Society for Testing and Materials (ASTM) E1618 method are also common due to their availability as charcoal lighters, paint thinners, and solvents. Classification of ignitable liquids according to the E1618 classification scheme can readily identify the ignitable liquid residue as a gasoline, MPD, or kerosene; however, comparing two samples (i.e. residue from fire debris to residue from a suspect's clothing) to determine if they are from the same source is much more problematic. This research was undertaken to provide the analytical and statistical basis for making such a determination.

Identification of Fingerprint Topology Using Dense Columnar Thin Films

Jessica W. Rogers, Pennsylvania State University

Columnar thin films have been deposited under vacuum to replicate the surfaces of fly eyes and butterfly wings at a microscopic level. Such a process is only beginning to be used in forensic applications to develop fingerprints. Films have been deposited on sebaceous and non-sebaceous fingerprints on glass slides with Chalcogenide glass or gold at a pressure of 4 μ torr for 5-15 minutes. These developments do not adversely affect the fingerprint detail or direct comparison. Both a top-down view and cross sectional view have been achieved with an ESEM. These images show the Chalcogenide glass thin films penetrating into the fingerprint residue and not sitting above the residue. These developments can be compared to traditional fingerprint developing techniques such as dusting and superglue fuming. Further deposits and subsequent examines will detail overlapping fingerprints and different substrate surfaces such as plastic, tape, wood, and metal, as such surfaces are commonly found in crime scenes.

The Incorporation of Solid-Phase Micro-Extraction (SPME) and Fluorescence Quenching Nitroaromatic Explosive Detection for the Advancement of Homeland Security

Miller, Alyssia; James, Jana; Sykes, Dan, Pennsylvania State University

Solid-phase micro-extraction (SPME) has found widespread use in the extraction of volatile compounds from environmental matrices. The basis for SPME is the application of a small diameter fused silica fiber coated with a polymer that has strong affinity for the target analytes. SPME is a rapid, re-usable, environmentally benign and cost-effective field sampling technique when compared to liquid-liquid extractions and solid phase extractions. Research included: Phase I: Explosives Selectivity, Phase II: SPME Extraction, Phase III: Explosives Detection

The contributions of the research will include the application of these fibers to confirm explosive detection alerts, aid in security processes, as well as test areas of suspected bombs. Ultimately, this research will create a SPME fiber that is less expensive, indestructible, environmentally benign and selective for a broad range of nitro aromatic explosives.

GWP – Good Weighing Practice – Minimizing Weight Measurement Uncertainty

Stephen Wilent, Mettler Toledo

During this presentation on good weighing practices, the following will be discussed:

- Determining weighing risks and how to control and minimize the sources of risk
- Identifying factors that contribute to weight measurement uncertainty
- Estimating measurement uncertainty and determining minimum weight
- Testing- Frequency of user tests and recommended test weights

Strengthening Forensic Science Education

Larry A. Presley, Arcadia University/ Council of Forensic Science Educators

The issuing of the National Academy of Sciences report "Strengthening Forensic Science in the United States" in 2009 has been the focus of numerous responses by the forensic community. Chapter 8 deals exclusively with education and training of forensic professionals, but a unified response from forensic educators has not been forthcoming. The Council of Forensic Science Educators (COFSE) is developing a response to meet the academic needs of the forensic sciences. The first determination is what are the needs of forensic science expertise in the United States? A strategic plan moving forward must survey and incorporate the needs of educators and practitioners. There are a lack of Ph.D. programs and research funding for forensic science disciplines. How will these deficiencies be addressed? FEPAC accreditation has helped to begin the standardization of the forensic science curriculum, but sources of research funding are still limited. NIJ and others have noted that there is no sustainable state or Federal funding source for forensic science research. Collaborations between practitioners and educators need to be fostered and developed, and COFSE is planning to seek more interaction with regional and national forensic science organizations, as well as, members of the legal community. Open lines of communication among forensic science stakeholders and educators, as iterated repeatedly in the National Academy of Sciences report, must for the basis for the improvement of the forensic sciences.

Statistics and Probability in Forensic Science

Walter Rowe, PhD, Department of Forensic Sciences, The George Washington University

Forensic scientists make frequent use of statistics and probabilities. Like other scientists they may have to concern themselves with obtaining representative samples from large (possibly inhomogeneous) collections of evidence; they may also be concerned about the precision of their measurements. However, in many criminal and civil cases forensic scientists have two fundamental questions to answer when confronted with a piece of evidence. What is it? And where did it come from? Sometimes it is only necessary to answer the first question. Is that white powder cocaine? This presentation will survey of the attitudes of United States courts toward statistical inference and probabilistic arguments, as well as the prevailing rules for the admissibility of scientific and technical evidence (which includes statistics and probability). It will examine in detail the 19th Century Howland Will case, the first case in which probabilistic testimony was presented in a United States court. It will also present the 1968 Collins case which engendered a controversy over probabilistic inference in the pages of law reviews in the United States. It will also look at the seriously flawed probability arguments presented by a forensic hair examiner in a series of sexual assault cases. This testimony resulted in a series of wrongful convictions, which were only reversed many years later by post-conviction DNA testing. The hair examiner was ultimately dismissed from his position under conditions that preclude his ever working in a forensic laboratory or indeed as an analyst in any laboratory.

Biology Sessions***Phenotypic Differentiation of *Bacillus cereus* T-strain (BcT) Spores from Alternate Medium Formulations Using Fatty Acid Composition***

Devonie Murphy, Christopher Ehrhardt, Ph.D., Tracey Dawson Cruz, Ph.D., James Robertson, Ph.D., Jason Bannan, Ph.D., Virginia Commonwealth University

Since the anthrax mailings in 2001, phenotypic characterizations of microbes recovered from a biocrime have become an important area of forensic research. In contrast to an organism's genotype, cellular phenotypes are influenced by the growth environment and may yield information about the substrates or production processes used to cultivate pathogenic bacteria used in a biocrime. In this study, we examined the phenotypic variation in *BcT* spore membranes as a function of the growth medium. Specifically, we tested whether the fatty acid composition of *BcT* spores, a surrogate for *Bacillus anthracis*, could be used to infer defining characteristics of the sporulation medium such as whether the organism was grown on formulations containing casein or meat digest protein and whether the medium was nutrient-rich (>10g/L protein supplement) or nutrient-poor (<5g/L protein supplement). In order to analyze differences among spores and extract forensic signatures that correspond to medium type, we used a variety of multivariate statistics including non-metric Multidimensional Scaling (nMDS) and Discriminant Function Analysis (DFA).

Our results show that spores grown on media containing casein digest are significantly different from spores grown on media containing meat digests in the proportions of straight chained and branched ('iso odd') fatty acids. Overall, these results suggest that variation in fatty acid composition may be an important phenotypic signature that can determine defining attributes of the sporulation medium and allow reverse engineering of a particular formulation. Ultimately such information could help future biocrime investigations by providing leads or excluding suspects.

Lost, Found, and Lost Again: The Continuing Mystery of Everett Ruess

Michael Coble, PhD, Odile Loreille, PhD, The Armed Forces DNA Identification Laboratory

Everett Ruess (b. 1914) was a poet and artist who navigated the deserts of the American southwest in the 1930s. During his brief life he befriended artist Ansel Adams and photographer Dorothea Lange. He was also among a select few Western Europeans welcomed into Native American settlements. In 1934 Everett left to explore the Escalante region of southern Utah and was never seen again. His burros and camp was ultimately found at Davis Gulch in the Escalante Canyons. Many have speculated that he died from falling off a cliff, or perhaps drowned crossing the Colorado River.

In 2008, a set of remains found near Comb Ridge (approximately 60 miles from Davis Gulch) were purportedly those of Everett Ruess. An elderly Navajo man told a story to his granddaughter that as a young man, he saw a Caucasian man murdered by two Ute Indians (ref). Feeling sorry for the man, he buried the remains in a rock crevice to prevent the destruction of the remains by coyotes. The grandson of the elderly man eventually found the burial site and the remains were analyzed by an anthropologist. The conclusion of the anthropological analysis was that the skeleton was most likely a Caucasian male in his 20s. Facial superimposition of a photo of Everett Ruess to the upper maxillary teeth gave even more evidence to the putative identification. DNA analysis of the remains to the four surviving nieces and nephews of Everett Ruess (using an analysis of 600,000 genomic SNPs) concluded that the skeletal remains shared ~25% of the DNA of the relatives, as one would expect with an avuncular relationship.

Based upon the totality of the evidence, the remains were given to the surviving family members of Everett Ruess in May of 2009 for burial. In June of 2009, Utah's state anthropologist came forward to question the findings based upon the wearing pattern of the teeth in the Comb Ridge skull, suggesting that the individual was likely Native American persisting on a corn diet. He also questioned the lack of evidence for dental work consistent with the archived files of Everett Ruess from the University of Southern California Dental School. Given the doubts raised in this case, the Ruess family contacted AFDIL to perform an additional DNA analysis of the remains. In this presentation, we will present the mtDNA and Y-STR results along with our analysis that the Comb Ridge remains are most likely those of a Native American, probably a Navajo individual, and not Everett Ruess.

The Correlation of Serum Stress Hormone Levels With the Cause and Circumstance of Death

Dominic Flaim and Robert Shaler, Ph.D., Pennsylvania State University

Interleukin 6 (IL-6) is a multifunctional stress hormone involved in response to stressors from exercise to disease. The function of IL-6 is regulated by both cell surface receptors and a soluble receptor of approximately 50 kilo Daltons. Levels of the hormone have been suggested as a marker for sepsis, and have also been shown to increase in response to psychological stress as well as tissue damage. The purpose of the present study is to determine if there is a correlation between the level of IL-6 and/or its soluble receptor and expectation of death and ability to control a stress response. Data for the soluble receptor suggests four possible groupings, and has been compared to autopsy findings regarding the deceased's expectation of death and ability to control the stress response.

Generating DNA Profiles from Washed Bloodstains

Stephanie Nickolas and Dr. Reena Roy, Pennsylvania State University

Forensic analysts often encounter situations in which perpetrators wash their clothing in an attempt to destroy blood and body fluid stains. Obtaining DNA profiles from these bloodstained fabrics after they have been subjected to washing and drying allows the forensic scientist to determine the nature and source of the stains. This research was conducted to determine if it is possible to generate DNA profiles from bloodstains that have been deposited on various types of fabrics and subjected to different conditions of washing.

Known quantities of blood from two living donors and one dead individual were deposited onto swatches of cotton and polyester fabric. Each swatch of bloodstained fabric was allowed to dry for approximately 24 hours at room temperature. Stained cotton fabric was subjected to a hot wash cycle using an automatic, commercially available washing machine with Purex[®] with Color Safe Bleach Alternative. Another set of washing was conducted on stained cotton and polyester fabrics using the same wash cycle, but with Ultra Purex[®] Regular Detergent and Clorox[®] Regular-Bleach. Extracted DNA was quantitated, amplified, and analyzed by capillary electrophoresis.

Using the organic and EZ1[®] BioRobot extraction procedures, it was possible to generate STR DNA profiles from the cotton fabric swatches washed with Purex[®] with Color Safe Bleach Alternative, indicating that a bleach alternative does not completely destroy hemoglobin or the white blood cells deposited onto cotton fabric. An attempt was made to use a "touch evidence" extraction procedure on several of the washed fabric swatches. This research indicated that it was possible to generate STR DNA profiles from the bloodstained cotton swatches washed with Ultra Purex[®] Regular Detergent and Clorox[®] Regular-Bleach, when the swatches contained blood from the dead individual.

Extraction Methods for Recovering Touch DNA With the Use of Optical Enhancement Techniques

Marybeth Sciarretta; Maria Saeed; Maria J. Illescas, M.S.; Tracey Dawson Cruz, PhD; VCU

More frequently, crime scene investigators are collecting touch DNA samples to be submitted to forensic laboratories. Touch DNA is the transfer of shed DNA during physical contact between an individual and an object. Such samples are difficult to analyze due to the inability to see the shed skin cells or saliva which are left on objects during contact. Previous research has shown that alternate light sources (ALS) can dramatically increase the visualization and recovery of touch DNA from porous and nonporous substrates. However, there has been no consensus within the DNA community as to what extraction method is best for retrieving touch DNA. An extraction method that maximizes recovery and minimizes further damage to DNA would be most suitable for these samples. This study evaluates several common extraction methods to determine if one method is more appropriate for touch DNA samples from porous and nonporous material.

Optimization of the Biomek NX Lab Automation Workstation for Use With Forensic Samples

Alan Ackroyd-Isales; Susan Greenspoon, PhD, Katie Horseman-Hall PhD, Sarah Seashols, VA DFS

The studies reported herein were devoted to optimizing and evaluating the Biomek[®] NX Laboratory Automation Workstation ("Biomek[®] NX") for performing DNA IQ[™] extraction and setup of the Plexor[®] HY System for quantification. The Biomek[®] NX is being evaluated as a possible replacement for the Biomek[®] 2000, the liquid-handling robot currently in use at the Virginia Department of Forensic Science (VDFS). In optimizing the Biomek[®] NX for DNA extraction, the contamination rate and sensitivity of the system were evaluated, as these steps are crucial to success, and were found to be comparable or superior to those values recorded for the Biomek[®] 2000.

Driftcon[®] Validation Study

Julie Maybruck, PhD, Michelle Pignone, Anne Baumstark, Heather Seubert, Richard Guerrieri; FBI

The DNA Analysis Units at the FBI Laboratory were interested in a temperature verification procedure which would alleviate the need for personnel to perform the currently utilized labor intensive process for thermal cyclers evaluation. The thermal cycler is a critical component of the polymerase chain reaction (PCR) therefore we conducted a validation study to ensure the reliability of a new thermal cycler performance evaluation system. The Driftcon[®] system provides several advantages over the Applied Biosystems (ABI) method

including multiple probes, numerous additional data points for multiple temperatures and times, data collection software, significantly shorter evaluation times per thermal cycler, and a paperless option. The two systems are quite different from each other with dissimilar temperatures, time frames, data calculation methods, and slightly different performance evaluations. We assessed both instruments with each thermal cycler to ensure the results were within the expected parameters for each system. Additionally, direct comparisons of several temperatures utilized in the ABI method were evaluated and similar results were observed for both systems. Following the conclusion of the validation study and acceptance of the method, a standard operating procedure was written and will be incorporated to conduct the performance verification process at the FBI laboratory.

Comparison of Thermal Cyclers and the Amplification Kits to Assess the Analysis of Low Copy Number DNA

Katherine O'Hanlon and Mitchell Holland, PhD; Pennsylvania State University

Often times, forensic DNA samples are not composed of pristine DNA, but are degraded or have very small amounts of DNA in the sample. With such samples, it can be difficult to develop a full DNA profile. One way to try to elicit a more complete profile is to employ more rigorous amplification techniques, such as increasing the PCR cycle number or post-PCR purification. This study took into consideration the PCR protocol, the thermal cycler, and the PCR kit used to determine a more efficient and effective amplification technique for low copy samples. A PCR protocol was developed for the Qiagen Rotor-Gene Q using pristine DNA and was then compared to the Applied Biosystems 9700 Thermal Cycler to determine which would produce better amplification results for low copy number samples; down to approximately 25 pgs of template DNA.

Comparison of PowerPlex® 16 GS to Minifiler® and Identifier® Amplification Kits

Ashley Jessup, Tracey Dawson Cruz, Ph.D., VCU, Catherine Connon & Meghan Clement, Lab Corp

The PowerPlex® 16 HS kit was designed to reliably type problematic forensic samples, including degraded, inhibited and low copy nuclear DNA samples. An initial sensitivity study was performed to compare the ability of PowerPlex® 16 HS, Minifiler®, and Identifier® to obtain profiles from 0.010-1.000ng of DNA from blood stains and buccal swabs. Typical low quality forensic samples prepared and/or collected for additional studies are as follows: blood degraded by heat, UV, environmental conditions, and treatment with active oxygen products; blood inhibited by dyes found in denim; high quality cell line DNA inhibited by common PCR inhibitors like hematin, tannic acid and humic acid; swabbings and cuttings from a variety of potential low copy DNA sources, ranging from telephones to worn clothing; and other common forensic or clinical samples encountered by the Forensic Identity Department (FID) at Laboratory Corporation of America Holdings, Inc. (LabCorp), including cigarette butts and biopsy slides. Signs of degradation and/or inhibition for each sample were evaluated by comparing quantitation values obtained via the Quantifiler® Human and Duo Quantification Kits. In order to effectively evaluate and compare PowerPlex® 16 HS's performance to that of the FID's current methodologies, development of DNA profiles were attempted from each sample through amplification using PowerPlex® 16 HS and, at a minimum, Minifiler® (if enough DNA was available, Identifier® was also used). Additionally, for the cell line DNA spiked with inhibitors, overall profile quality was evaluated using 28, 30 and 32 PCR cycles.

Mixture Analysis of Short Tandem Repeat (STRs) Data Using GeneMarker® HID

Teresa Snyder-Leiby, Joanathan C.S. Liu, Haiguo He, SoftGenetics, LLC

Short Tandem Repeat (STR) genotyping is instrumental in data analysis for a wide range of human identification application, including missing persons, mass disasters, and crime scene investigations. Very often samples from mass disasters and crime scene investigation are mixtures rather than single source,

requiring additional analysis after allele calls are made. GeneMarker HID has all the features of an expert system for consistent and accurate genotype determination and an embedded mixture analysis application that follows the recommendations of the DNA commission of the International society of Forensic Genetics. Publicly available mixture data from the National Institute of Standards and Technology (NIST) will be presented.

Testing & Implementation of New Technology. Quick Survey of Sperm Detection and Isolation Projects, Karl Reich Ph.D., and Dina Mattes

The well understood, though rarely publicized, backlog of sexual assault evidence (SAE) analysis has at least two major hurdles: sperm searching/identification and sperm isolation/differential extraction. Here we present a brief overview of current and new technologies and projects in forensic DNA research specifically addressing these two bottlenecks in forensic crime laboratory workflow. Like almost all forensic laboratories, the National Forensic DNA Laboratory of Denmark needed to reduce their backlog, and improve their DNA-STR success rate from SAE. To directly test the claims of specificity and efficiency of **SPERM HY-LITER™**, a wide variety of samples were independently analyzed in a double-blind study in two different laboratories. The results of this rigorous and extensive test of **SPERM HY-LITER™**, vs. traditional histological staining are presented. The talk will close with an update on current experimental progress using laser-capture microdissection, motorized micromanipulators and flow cytometry/cell sorting for high-throughput isolation of sperm from sexual assault evidence with the eventual goal of eliminating the current inefficient and time consuming differential extraction method.

DNA Extraction Efficiency: Is it what you thought?

Erica Butts, Margaret C. Kline, Jamie L. Almeida, Peter M. Vallone; NIST

Forensic DNA typing requires a specific quantity of input DNA (typically 0.5 - 1.0 nanograms) to generate an optimal short tandem repeat (STR) profile. For reference samples, the amount of DNA collected on a standard buccal swab or blood punch is generally in excess of that which is needed for testing (on the order of hundreds of nanograms (ng)). Typically, extraction efficiency is evaluated by determining the number of samples that produce a full STR profile divided by the total number of samples processed. Less attention has been paid to the amount of DNA unrecovered during the extraction process. The importance of evaluating the theoretical yield versus the functional yield is in cases when the amount of available DNA is low. In these cases it would be beneficial to obtain an extraction recovery that is closer to the theoretical yield than the functional yield. Evaluating the amount of unrecovered DNA could lead to more efficient methods to recover higher percentages of DNA from the extraction and purification processes.

Extraction efficiency experiments were conducted to evaluate the percentage of DNA recovered through two extraction methods: a salting out procedure [1] and use of the Qiagen EZ1 Advanced XL Extraction robot. Several DNA sources were tested in duplicate using different concentrations of human epithelial cells, previously purified DNA, or liquid whole blood.

Automation Efforts of the Federal DNA Database Unit

Karen Reed, Melissa Ulan, Richard A. Guerrieri, FBI (FDDU)

The Federal DNA Database Unit (FDDU) of the FBI Laboratory has undergone significant changes in the past nine years that have allowed the unit to increase its sample processing rate 30 fold while becoming a high throughput DNA typing laboratory. FDDU received its first convicted offender samples in 2001 as the Federal Convicted Offender program of the DNA Analysis Unit I. Since then, the number of samples the program receives has increased exponentially due to several changes in the legislation regarding sample collection. The Justice for All Act of 2004 expanded the list of qualifying offenses to include all federal felonies. More recently, the DNA Fingerprint Act of 2005 and the Adam Walsh Child Protection and Safety Act of 2006

expanded the sample collection to include all federal arrestees and non-USA citizen detainees. The expansion in sample collection has led to the onset of automation efforts in FDDU to efficiently process the samples.

Chelex-HY Screening: A rapid and sensitive technique for the detection of male DNA

Darren Warnick, PhD, Craig Nolde, Daniel Hellwig, Sorenson Forensics

Serological screening to detect biological fluids that indicate the presence of male DNA is an important aspect of forensic casework, especially in cases where sexual assault has occurred. Improved DNA extraction and detection methods have given rise to faster and more sensitive male DNA detection processes. In this report we describe a rapid and sensitive technique to screen for the presence of male DNA that combines Chelex extraction with Plexor HY quantitative PCR (QPCR). Studies using serial dilutions of both semen and saliva revealed that this technique is two to eight times more sensitive in detecting male DNA compared to traditional serological methods. Chelex-HY screening of mock sexual assault samples detected male DNA a full 72 hours post intercourse. Additionally, both in sensitivity studies and non-probative casework studies, a value of zero (N/A) by Chelex-HY screening yielded no DNA profile, both in YSTR and STR testing. These results suggest the Chelex-HY screening technique is sensitive enough to detect minute levels of male DNA and provides a reliable base from which STR amplification decisions can be made.

Next Generation Sequencing of Forensic DNA Loci Using 454 Life Sciences Technology

Megan McQuillan, Mitchell Holland, Ph.D, Penn State Univ.; John McGuigan, B.S., SoftGenetics

For nearly two decades, forensic scientists have relied on Sanger-sequencing and fragment-length analysis methods to produce DNA profiles from biological evidence found at crime scenes, human remains identification, and convicted offender samples. As the Molecular Biology and Genetics fields move into the realm of high throughput, cyclic array, and single molecule sequencing known as Next Generation Sequencing (NGS), these methods have become available for forensic DNA analysis. Although currently being used for applications such as whole genome sequencing of organisms, transcriptome analysis, and cancer research, the NGS platforms can be used for amplicon analysis - the backbone of forensic DNA profiling.

Initial experiments have demonstrated that 454 Life Sciences NGS technology can be used to generate reliable forensic DNA profiles from single source and mixture samples. Autosomal and Y chromosome short tandem repeat (STR) loci were targeted along with the mitochondrial DNA control region. Individual samples were amplified with unique molecular barcodes, pooled together for simultaneous sequencing, and cleanly separated during analysis. Additional mixture experiments were conducted at various component ratios in order to establish the limits of the system.

Applied Biosystems Product Update: Targeted Tools for Efficient Forensic Analysis

Michelle Shepherd, Applied Biosystems

This presentation provides an update on new and in-development products from Applied Biosystems designed to improve DNA analysis of forensic samples and streamline process implementation. Topics include:

Next Generation STR Chemistry – A discussion on the new STR kit chemistry solutions developed by Applied Biosystems to improve the efficiency of casework, databasing and other human identification workflows and enable more successful analysis of forensic evidence. The AmpFtSTR® Identifiler® Plus PCR Amplification Kit, which significantly improves recovery of interpretable results from challenging casework samples, and the AmpFtSTR® Identifiler® Direct PCR Amplification Kit, the first STR kit specifically designed to enable high-quality direct PCR amplification of single-source DNA samples.

AutoMate Express™ Forensic DNA Extraction System – A medium throughput bench top extraction instrument for lysis and the separation of lysate from the substrate. This novel apparatus minimizes sample handling and

maximizes lysate recovery. All reagents required for purification of DNA from the lysate of one forensic sample are packaged into a single cartridge, resulting in consistent recovery and minimizing cross contamination risks. The automated protocols are optimized for extraction of DNA from a wide range of sample types.

PrepFiler™ Forensic DNA Extraction Kit – A breakthrough multi-component surface chemistry that achieves optimal DNA binding and highly efficient elution, enabling superior yield, inhibitor removal and automated capability for both routine and challenging samples with the option of manual or fully automated extraction.

Questioned Documents Sessions

Responses to a Survey on Changes in Writing Ability After Brain Injury: Considerations for the Forensic Document Examiner

Raeson Caine , Treasury Inspector General for Tax Administration (TIGTA)

When examining writing to determine whether an individual penned a questioned signature or body of text, the Forensic Document Examiner must consider whether a subject was capable of executing the writing in question based on the skills exhibited in writing samples provided for comparison. Involuntary changes in written expression are of relevance in cases of disputed legal documents, financial transactions, and other matters that may be brought to the Forensic Document Examiner for resolution. The Document Examiner must understand that an individual's writing may look different before, just after, and long after sustaining a brain injury, and should take these factors into consideration when rendering an opinion. This research was conducted to gain an understanding of how brain injury can affect an individual's written expression with respect to penmanship, spelling, syntax, sentence-building, and narrative construction.

Fraudulent California Driver's Licenses, Martin Johnson, Howard County Police Department

This presentation will address recent trends and observations concerning fraudulent California driver's licenses to include magnetic strip information, UV features, micro-printing, UV features, and other fine detail. Comparisons between originals and fakes will be discussed and evaluated. Inconsistencies and differences noted in the fraudulent licenses will be highlighted in order to assist individuals in differentiating between valid and fraudulent CA driver's licenses.

The Identification of Indented Writing in the Murder of Riley Ann "Baby Grace" Sawyers

Gabe Watts, Federal Bureau of Investigation

On October 29, 2007, the body of an unidentified female child estimated to be between 2 to 3 years old was discovered in a plastic container in West Galveston Bay, Galveston County, Texas. She was given the name Baby Grace by employees of the Galveston County Sheriff's office (GCSO). After a press conference offering a \$20,000 reward for the identity of the girl, the grandmother recognized the highly publicized computerized depiction of the child as her son's daughter, Riley Ann Sawyers. The grandmother provided information that led to the arrest of Riley's mother and stepfather, Kim Trenor Zeigler and Royce Clyde Zeigler, II. Although Kim initially confessed to murdering Riley as part of a "day long disciplinary session," there were conflicting accusations and statements made by both Kim and Royce that were difficult to corroborate and left the details of the murder unclear, including who was involved in the murder. The Galveston County District Attorney and GCSO requested the assistance of the FBI Laboratory in conducting forensic examinations on evidence collected in the matter.

From February to May of 2008, The Questioned Documents Unit (QDU) received seven separate submissions of evidence collected from both the home and storage unit of Kim and Royce. Among the submissions were

26 spiral notebooks and 6 pads of paper that were alleged to contain indented writing of evidentiary value. The notebooks and pads of paper were searched for indented writing using oblique angled lighting. Of the hundreds of pages searched, the indentation of an incriminating letter was found and enhanced using the Electrostatic Detection Apparatus (ESDA). The letter was an apparent suicide note that contained a general confession of "past sins," declared Kim "innocent," and was signed by Royce C. Zeigler, II. A handwriting comparison confirmed the indented writing and signature to be that of Royce Clyde Zeigler, II. After two separate trials in 2009, both Kim and Royce were sentenced to life in prison for their respective roles in the murder.

Stolen Valor: The Military's DD Form 214 , Kirsten Singer & Nancy Cox, Dept. of Veteran Affairs

The DD Form 214 is the document issued by the Department of Defense upon the retirement, separation or discharge of a military service member. It is considered one of the most important documents in the military, as it is a complete record of a service member's time in the military, awards and medals, and other service information. The DD 214 is used by the Department of Veterans Affairs to determine veteran benefits based upon such information as awards and medals and combat duty location and dates. As a result, information on this form is sometimes altered to increase compensation benefits, and is known as "Stolen Valor." This presentation will describe in more detail the history and information contained on a DD 214, as well as methods and reasons for unlawful alteration of this document.

Comparing Fracture Matches via SEM after Chemical Processing for Latent Prints

Joseph C. Stephens, Stephanie Houlgrave, Deana Kubilus, United States Secret Service

Cases involving threats, ransom demands, or other mailed communications often contain material(s) that may be suitable for comparison with specimens collected from a suspect. These types of materials can include, among other things, stamps, labels, and clippings. On occasion, some or all of the comparable items are processed for latent prints prior to any fracture match examination. While optical microscopy is often an excellent starting point for fracture matching, chemical processing can diminish the contrast for individual fiber comparisons.

This project examines two aspects of fracture matching via Scanning Electron Microscopy (SEM). The first phase will compare five (5) substrates that have undergone the standard gamut of chemical processing techniques for the development of latent prints on porous surfaces (i.e., 1,2-Indanedione-ZnCl₂, Ninhydrin, and Physical Developer). Cut edges from processed and unprocessed edges, two processed edges, and two unprocessed edges will be compared using the SEM for each substrate.

The second phase will examine one substrate at various stages in the development process. Unprocessed cut edges will be compared with edges of each chemical treatment as well as the various combinations of treatments using the three chemical processing techniques currently utilized at the United States Secret Service.

The results from each part of the study will be compared with optical microscopy comparisons as a point of reference.

How Do You Do Voodoo Exemplars? , Gregg Mokrzycki, Federal Bureau of Investigation

In a recent double-homicide investigation, police recovered a candle inscribed with writing at a suspect's house. Investigators also recovered other items relating to the practice of Voodoo. The candle text was thought to be a Voodoo spell, and refers to the victims, the address where the bodies were found, and references to how the writer hopes the subject would die.

The writing appeared suitable for a handwriting comparison, but since the writing was on an unusual surface,

investigators requested assistance from this examiner to supervise the collection of exemplars. This presentation will include detail surrounding the case and the challenges of collecting these unusual exemplars.

MISSING EXAMINATION DOCUMENTATION An Expert Witness's Nightmare

Marguerite McHenry, Federal Bureau of Investigation

This presentation will address the uncomfortable situation of being an expert witness called to testify to your findings and not being able to locate your case examination documentation. A discussion of a real life scenario and the dilemmas faced by the expert who found herself in this unusual predicament will be presented. In addition, the reaction of the legal parties involved, the steps taken by the parties correct the situation, and the final outcome of the testimony will be highlighted.

Covert-Print Writing Apparatus and Authentication Method

Aaron S. Brandstein, Microprint Pen Inventor

This presentation will address prior art and disadvantages inherent in present technology. An abstract and general summary of covert-print writing apparatus technology will be included. Various uses of covert-print technology and its advantages over existing technology will be presented to include a detailed description of form, use, function and method. Question and answer session to follow.

Sports Card Document Problem – Is One Piece Of Evidence Enough?

Robert Negherbon, Penn State University

An unusual theft case was submitted to our laboratory several months ago. A football card, purportedly signed by Ben Roethlisberger, was submitted to our laboratory along with a digital image from eBay showing what appeared to be the front side of the same card. The investigator in the case wanted to know if the actual card in hand was the exact same one that appeared on the eBay image. This presentation will detail the steps taken in this case to examine the signature, the opinion rendered, and possible issues that will need to be addressed to prepare the case for court.

One Suicide Note, Two Writers, Danielle Seiger and Gregg Mokrzycki, FBI

The 2009 CTS proficiency test for handwriting presented a scenario in which what appeared to be a suicide note was actually one line of writing inserted into another note, turning it from an innocuous "goodbye" letter into a cover up for murder.

This presentation will include a discussion of the test and an analysis of the results. A participatory discussion will follow and will cover the following questions:

1. Was the test design valid?
2. What role did technical review play?
3. To what extent was there "test bias"?

How does the QD field answer questions about the results of this test?

Hyperspectral Imaging for Forensic Document Examination, Sara Nedley, ChemImage

In the analysis of questioned documents the determination of the number and types of ink used in a document can be critical. Hyperspectral imaging (HSI) over the visible and near-infrared (NIR) spectral range (400 - 1100nm) can provide information about whether more than one ink is used to mark a document. In this presentation current methods for the application of HSI to the analysis of questioned documents will be reviewed, with a focus on basic theory and examples including identification of multiple inks within a single

document. A summary of various research efforts will also be discussed including an ongoing black ballpoint ink comparison study as well as information on past studies on printer and toner ink comparisons.

The Autopen: A Forger's Dream and Examiner's Headache? , Lindsey N. Dyn, FBI

While the autopen has been in use since the early 1940's, a limited amount of information regarding this technology exists in published form. As such, various models of the autopen are examined. Furthermore, with the advent of computer software that can mimic an individual's handwriting, examiners must be cautious with conclusions if such software is combined with the use of an autopen. This study explores such a combination, highlighting the writing characteristics produced.

ICITAP Forensic Services, Brittany King, ICITAP

A component of the Department of Justice, International Criminal Investigative Training Assistance Program (ICITAP), works with foreign governments to develop law enforcement institutions that protect human rights, combat corruption, and reduce the threat of transnational crime and terrorism. Currently, ICITAP Forensic Services section provides technical assistance and training to many countries around the world by providing equipment donations, training in various forensic disciplines, and strengthening quality management systems for International Organization for Standardization (ISO) accreditation. This presentation will focus on the mission, programs, and successes of ICITAP's Forensic Services.

The Danger is in the Data – Protecting Variable Information on Birth Records

Peyton Old, Fasver Technology Inc.

Fasprotek® is an ultra-thin security layer applied OVER variable data on documents such as Birth Certificates, Motor Vehicle Titles, Educational Institution Achievement Records, etc. It is used on the US Emergency Passport and the US Coast Guard Merchant Mariner Credential. The presentation will show the product and discuss the many possible security features which can be included. The goal of this program is to educate forensic lab staffs about the types of data security overlays in the marketplace.

Fall Workshop Overview – Fraudulent Identity Documents, Peter Belcastro, FBI

The 2009 QD fall workshop was held in Washington, D.C. at Fox Valley Technical College. A brief synopsis of the day long workshop entitled "Fraudulent Identity Documents" will be presented. This will include an overview of the instructors, the topics addressed, and resource information that was handed out to the attendees.

Participants

Matthew Abbott	Maryland State Police	Jessi Brown	Maryland State Police
Eli Absey	Waters Corporation	Sherry Brown	York College of Pennsylvania
Michelle P. Ackermann, MS	AFDIL	Danielle Brownell	Promega Corporation
Alan Ackroyd-Isales	Virginia Commonwealth University	Kristy Bruno	PA State Police
Irina Aleshkevich	PA State Police	Joe Burgess	Varian Inc.
Kimberly Sturk Andreaggi	AFDIL	Cassandra Padula Burke	Baltimore County PD Forensic Services
Amanda Andrews	NMS Labs	Michelle Burkett	PA State Police
Julissa Armstrong	Virginia Commonwealth University	Christine Burns	Maryland State Police
Chris Anne Arrotti	Pennsylvania State Police	Vikram Butani	Kubtec X-Ray
Robert Askew	STReamline Innovations, Inc.	Erica Butts	NIST
Susan Atwood	PA State Police	Patrick Buzzini	West Virginia University
Kelly Ayers	WVU Forensic Science Initiative	Raesin Caine	TIGTA
Jennifer L. Badger	Pennsylvania State Police	Deb Calhoun	Pennsylvania State Police
Jessica Badger	NCSBI	Sarah Chenoweth	Anne Arundel Co. Crime Lab
Eric Bailey	Pennsylvania State Police	Arthur Christy	VA Department of Forensic Science
Timothy Baize	NCSBI	Brenda Christy	VA Department of Forensic Science
Michelle L. Barch	Pennsylvania State Police	Mike Cipoletti	Waynesburg University
Rick Barlow	Sorenson Forensics, LLC	Matt Clabaugh	AB SCIEX
Steven Barrett	KY State Police Central Forensic Lab	John Clemens	KY State Police Central Forensic Lab
Steve Barrett	Saville Corporation	Kristen Clemens	Cumberland Co DA's Forensic Lab
Tim Barrouk, Esquire	The McShane Firm, LLC	Kim Clements	Montgomery County Crime Lab
Pete Belcastro, Jr.	FBI	Mike Coble	NIST
Kareem Belt	NY OCME	Lyndsey Bell Cone	Virginia Commonwealth University
Roscoe Bennett	Pennsylvania State Police	Gail Conklin	Monroe County Public Safety Lab
Susan Berdine	Denver Police Department Crime Lab	Rachel Marie Conroy	York College of Pennsylvania
Sarah Berson	National Institute of Justice	Jeff Cover	Anne Arundel County Crime Lab
Bill Bickle	Montgomery County Police Department	Christina Cowley	Baltimore Police Department
Angelina M. Biondi	Pennsylvania State Police	Lindsey Crass	WVU Forensic Science Initiative
Michael P. Biondi	Pennsylvania State Police	Katherine L. Cross	NMS Labs
Phung Blevins	Fairfax Identity Laboratories	Tracey Dawson Cruz	Virginia Commonwealth University
Andrea Borchardt-Gardner	Bode Technology	Angie Cunningham	VA Dept of Forensic Science
Maureen Bottrell	FBI	Chris D'Amario	Baltimore County Police Forensics
Robin Bowen	WVU Forensic Science Initiative	David A. Danner	Pennsylvania State Police
Jess Boyle	WVU Forensic Science Initiative	Yasser Daoudi	Promega Corporation
Aaron S Brandstein	Consultant	Mike DeGuglielmo	Whatman (GE Healthcare)
Eileen Briley	Maryland State Police	Melanie Devore	STReamline Innovations, Inc.
Michael L. Brincat	PA State Police	Angela DiFiore	RJ Lee Group, Inc.
Anthony Brown	VA Department of Forensic Science	Joseph Dintino	NJSP (retired)
Jeannette Brown	FBI	Shawn Dorward, Esquire	The McShane Firm, LLC

Participants

Colleen Dunn	AFDIL	Jocelyn Y. Harris	DC Pretrial Services
Richard Dusak	DHS/USSS	Diana Harrison	FBI
Lindsey N. Dyn	Federal Bureau of Investigation	Heather Hartshorn	DEA Mid-Atlantic Lab
Anja Einseln	ASCLD/LAB	Sandra Hartsock	Maryland State Police Crime Lab
Peter Eklund	Forensic Advantage Systems (TCSC)	Ron Henner	Agilent Technologies
Bob Elsavage	Pennsylvania State Police	Mary E. Hockensmith	Pennsylvania State Police
John Evans	PA State Police	Mitch Holland	Penn State University
David Exline	RJ Lee Group	Charity Holland	Mitotyping Technologies
Jim Fabre	DEA	Russ Holley	NCSBI
Gretchen Falter	Leica Microsystems, Inc.	Diana Hoover	Seton Hill University
Chris Federinko	Patton Township Police	David Hoover, Esquire	The McShane Firm, LLC
Christiana Fischer	NCSBI	Anne Hunter	Independent Forensics
Dominic Flaim	Penn State University	Joshua Hynes	KY State Police Central Forensic Lab
Kevin Flint	Virginia Department of Forensic Science	Amy Irwin	Pennsylvania State Police
Angela Flowers	Seton Hill University	Linda Jackson	VA Dept of Forensic Science
Barbara E. Flowers	Seton Hill University	Jana A. James	Penn State University
John Fosnacht	SoftGenetics	Brad C. Jenkins	VA Department of Forensic Science
Antoine Frazier	TIGTA	Ashlee Jessup	Virginia Commonwealth University
Patrick Fromal	Shimadzu	Joel Johnson	Maryland State Police
Elena Ganloch	Biotage	Shelley Johnson	Fairfax Identity Labs
Cheryl A.B. Gardner	U.S. Postal Inspection Service	Sara A. Jones	Penn State University
Mike Garvey	U.S. Government	Sara Jubelirer	PA State Police
Zach Gaskin	GFI Laboratory	Rebecca Just	AFDIL
Timothy J. Gavel	Pennsylvania State Police	Carey Karashowsky	AFDIL
Frances M. Gdowski	NJSP Office of Forensic Services (Retired)	John "Skip" Keirnan	Zeek Co.
Alicia Genther, Esquire	The McShane Firm, LLC	Micah Kelly	Pennsylvania State Police
Rich Gervasoni	Montgomery County Crime Lab (retired)	Jeff Kercheval	Hagerstown Police Department
Randy E. Gibson	San Diego PD Crime Lab	Mine Kimura	Montgomery County Crime Lab
Dr. Alex Glessner	Pennsylvania State Police	Brittany King	TIGTA
Lorie L. Gottesman	FBI	Sarah L. Kinner	Pennsylvania State Police
Mark Guillian	Qiagen	Frank Kist	Pennsylvania State Police
Brenda Haggerty	Virginia Commonwealth University	Kristen M. Kohler	PA State Police
Carol Ann Haizlip	DNA:SI Labs	Faith Konidaris	Seton Hill University
Lyle Hall	Kentucky State Police Central Forensic Lab	Steve Kozel	Restek Corporation
Joseph Halloran	Perkin Elmer	Joe Kukosky	Pennsylvania State Police
Michelle Hannon	NCSBI	Teri Labbe	Baltimore Police Department
Nicole Harold	Virginia Department of Forensic Science	Ben Landas	Varian Inc.
Bridget Harrington	Kubtec X-Ray	Owen Lang	Foster & Freeman
David Lee Harris	BRT Laboratories	Robyn L. Larson	VA Department of Forensic Science

Participants

Diane Lawder	Maryland State Police	Devonie Murphy	Virginia Commonwealth University
Melissa Morgan Lenahan	PA State Police	Gina Musante	Pennsylvania State Police
Kathy Leon	Penn State University	Peter Natale	Forensic Advantage Systems (TCSC)
Hai-Sheng Li	Pennsylvania State Police	Samantha Neal	WVU Forensic Science Initiative
Clyde Liddick	Pennsylvania State Police	Sara Nedley	ChemImage
Bob Llano	Anne Arundel County PD Crime Lab	Robert H. Negherbon	PA State Police
Gabriel Llinas	PA State Police	Ronald Neu	Perkin Elmer
Donna Lodek	Troemner	Stephanie Nickolas	Penn State University
Robert Luce	Leica Microsystems, Inc.	Katie O'Hanlon	Penn State University
Joe Lucero	Qiagen	Peyton Old	Fasver Technology Inc.
Erin Luck	Pennsylvania State Police	Carolyn Oleyar	PA State Police
Akiko T. Mack	Pennsylvania State Police	Maxine Oleyar	Pennsylvania State Police
Ashlee L. Mangan	Pennsylvania State Police	Robert Ollis	US Army Crime Lab
Eric Manning	Shimadzu	David J. O'Neil	VA Department of Forensic Science
Jennifer Marchand	PA State Police	Martin Overly	WVU Forensic Science Initiative
Deborah Marsh	Perkin Elmer	Aimee J. Paine	PA State Police
Elizabeth Martin	PA State Police	Mike Pannella	Thermo Fisher Scientific
Mike Martin	ESCO Technologies, Inc.	Sabine Panzner-Kaelin	Pennsylvania State Police
Claudia Martin	ESCO Technologies, Inc.	Jennifer Paul	Saville Corporation
Dina Mattes	Independent Forensics	Dr. Mark W. Perlin	Cybergenetics
Julie Maybruck	FBI	Agent George Piro	FBI
Michael McCasland	NY OCME	Cara Plese	Virginia Commonwealth University
Cheri L. McConnell	Penn State University	Jennifer Prentice	AFDIL
Leonard McCoy	Pennsylvania State Police	Larry Presley	Arcadia University
Brad McLaughlin	Pennsylvania State Police	A. Robyn Quinn	DE OCME
Lisa McLaughlin	Waters Corporation	Graham Rankin	Marshall Univ. Forensic Science
Danielle McLeod-Henning	NIJ	Rose Mary Rawding	PA State Police
Megan McQuillan	Penn State University	Karen K. Reed	FBI
Justin McShane, Esquire	The McShane Firm, LLC	Neal Rerko	Pennsylvania State Police
Terry Melton	Mitotyping Technologies	Tom Reynolds	Fairfax Identity Laboratories
Amy Michaud	ATF	Amanda Rigdon	Restek
Alyssia Miller	Penn State University	Ralph R. Ristenbatt III	Penn State University
Sandra Miller	PA State Police	Craig A. Robinson	Anne Arundel County
William Miller	Fairfax Identity Laboratories	Jessica Roger	Penn State University
Casey Danielle Mims	Virginia Commonwealth University	Joseph Rosowski	Philadelphia Police
Gregg Mokrzycki	FBI	Walter Rowe	The George Washington University
Lisa Moore	Pennsylvania State Police	Peter Safran	ChemImage
Betsy Moran	Whatman (GE Healthcare)	Douglas J. Samber	Pennsylvania State Police
Jessica O. Mulhollem	Pennsylvania State Police	David Samuels	SPEX Sample Prep



Participants



John Sardone	FBI	Sally Tokarz	NMS Labs
Scott Saveleski	Miele	Christine Tomsey	Retired - PA State Police DNA Lab
Lisa Schiermeier-Wood	VA Department of Forensic Science	Martha Traugott	NCSBI
Elizabeth Schneider	Maryland State Police	Bruche' Trotter	Virginia Commonwealth University
Marybeth Sciarretta	Virginia Commonwealth University	Melissa Ulan	FBI
Patricia "Pat" Seifert	Zeek Co.	Logan Umberger	Biotage
Danielle P. Seiger	FBI	Erik Volek	Mettler Toledo
Danielle Sewell	BRT Laboratories Inc.	Jeff Wagner	PA State Police
Robert Shaler	Penn State University	Jasmine Wahlberg	Pennsylvania State Police
Brian Shannon	VA Department of Forensic Science	Scott Walters	US Secret Service
Alison Shao	BRT Laboratories, Inc.	Dawn Waltman	Applied Biosystems
Sheila Shaw	Pennsylvania State Police	Darren Warnick	Sorenson Forensics, LLC
Amy Shenk	VA Department of Forensic Science	Gabe Watts	FBI
Michelle Shepherd	Applied Biosystems	Brad Way	Forensics Source
Jill Shope	PA State Police	Jon Weader	PA State Police
Wayne Shu	Maryland State Police	Ted Weldon	Leeds Forensic Systems, Inc.
Lisa Shutkufski	Pennsylvania State Police	Gerhard Wendt	PA State Police
Theodore J. Siek	Bucks County Crime Lab	Will Wihlborg	Thermo Fisher Scientific
Lee Ann Singley	Grayson Singley Associates, LLC	Stephen Wilent	Mettler Toledo
Stephanie Sivak	The Bode Technology Group	Ted Williams	Pennsylvania State Police
Karen Smith	RJ Lee Group	Becky Wittrig	AB SCIEX
Maggi Smith	UMUC	Jamey Yawn	Aegis Sciences Corporation
Sara E. Smith	Penn State University	William Young	BRT Laboratories, Inc.
Eric Smith	Miele	Jeffrey M. Zachetti	Pennsylvania State Police
Craig Smith	Perkin Elmer	Deb Zamboni	PA State Police
Tom Snyder	Patton Township Police	Jodine A. Zane	DNA:SI Labs
Teresa Snyder-Leiby	SoftGenetics	Darrel Zezzo	Restek Corporation
Tim Stacy	STaCS DNA, Inc.	Keena Zitkovich	RJ Lee Group
Marianne Staretz	Cedar Crest College		
Joseph Stephens	U.S. ICE Forensic Document Lab		
Colin Steven	ATF		
Matt Stielper	Baltimore County Police Forensics		
Robert Stroyne	Perkin Elmer		
Dan Suppok	Pennsylvania State Police		
Dan Sykes	Penn State University		
Michelle Sylvester	NY OCME		
Jessica Taylor	Maryland State Police		
Melissa Thomas	Penn State University		
David Tobin	Foster & Freeman		

Bars & Restaurants

Greater State College Area • 2007 - 2008



Copyright 2008 by the Central Pennsylvania Convention & Visitors Bureau and the Berks County Convention & Visitors Bureau. All rights reserved. No part of this guide may be reproduced by any person except with written permission of the publisher.

The publisher, the CPVB and its members, and the authors in this guide do not warrant in any way the use of this guide for planning travel in any state other than that of Pennsylvania or in any other state. If you are 21 and over, and in this state, please do not drink and drive.

For more information about travel services and other services, check out the Pennsylvania Travel Center Website: www.pa.gov

EDITED BY: Paul Schneider ©2007 ALL RIGHTS RESERVED

Recommended Dining Suggestions:

Fine Dining and casual restaurants but are exceptional good!

Allen Street Grill – A popular local restaurant, American and Italian cuisine, located in State College downtown, 100 W. College Avenue. (814) 231-4745.

Alto Italian Restaurant – Italian cuisine and best wine selection, located in Lemont, 901 Pike Street, Lemont, PA. (814) 238-5534 closed on Sundays.

American Ale House & Grill – Everything from sandwiches to steak and seafood, outdoor seating in the summer, open for lunch and dinner, brunch on Sundays, and live entertainment on the weekends, 821 cricklewood Drive, State College, PA. (814) 237-9701.

The Carnegie House – Fine classical European cuisine, with full dinning services, located in Toffrees, 100 Cricklewood Drive, State College, PA. (814) 234-2424. Reservation is recommended!

The Corner Room – Casual dining with home-style cooking, popular local restaurant, located in the heart of State College, 100 W. College Avenue. (814) 237-3051.

Cozy Thai Bistro – Fine Thai cuisine, which includes healthy delicious Thai dishes, located in State College downtown, 232 S. Allen Street; (814) 237-0139.

The Deli Restaurant – One of the largest menus in State College, including lunch, brunch, dinner and late night food, 113 Heister Street. (814) 237-5710.

Duffy's Tavern – Elegant dining in an authentic colonial atmosphere. Steaks, seafood, chicken and pasta, full bar, located in Boalsburg, 113 E. Main Street. (814) 466-6241. Reservation is acceptable.

Faccia-Luna Pizzeria – Fresh pasta and the best wood fired pizza in town, 1229 S. Atherton Street, (814) 234-9000.

Fuji & Jade Garden – Chinese shanghai menu & sushi bar, 418 Westerly Parkway, State College, PA (814) 861-3226.

The Gamble Mills – American cuisine served in the warm atmosphere of old wood, brick and stone, located in Bellefonte, 160 Dunlap Street. (814) 355-7764.

Green Bowl – Voted for best health conscious by State College Magazine's. Create your own bowls with different ingredients, sauces, and your choice of meats. 131 W. Beaver Avenue. (814) 238-0600.

Herwig's Austrian Bistro – Home of the original Austrian Comfort food! Very casual, but everything is made from scratch! Located downtown State College, 132 W. College Avenue (814) 238-0200.

India Pavilion (Indian Cuisine) – Offers a variety of selection, including vegetarian and non-vegetarian dishes, 222 East Calder Way, State College, PA. (814) 237-3400.

Inferno Brick Oven & Bar – Inferno is a contemporary Neopolitan brick oven experience featuring a focused menu of old world favorites and modern day revolutions. Enjoy a drink from their full-service bar, 340 E. College Avenue (814) 237-5718.

Kelly's Steak and Seafood – Great steak and seafood menu! Family-friendly dining and wonderful atmosphere, located in Boalsburg, PA 316 Boal Avenue. (814) 466-6251.

Mad Mex (Mexican restaurant) – Variety of Mexican food and upbeat environment late night, it is 21 and over after 9pm. Great Margaritas! Located downtown in State College, 240 S. Pugh Street. (814) 272-5656.

Mario & Luigi's Italian Restaurant – Great pasta and wood fired pizza, rotisserie chicken and other Italian favorites, 1272 N. Atherton Street. (814) 234-4273.

Olde New York – A wide range menu of old-world flavors with distinctly American tastes. Try variety of sandwiches named after famous neighborhoods and landmarks of New York City, 2298 E. College Avenue, State College, PA. (814) 237-1582.

Otto's Pub & Brewery – Serving mix sandwiches, salads, seafood, pasta and steaks accompanied by the largest selection of on-site brewed beers, 2105 N. Atherton Street. (814) 867-6886.

Rotelli – Neighborhood Italian restaurant, Rotelli is the place for hearty Italian pasta, pizza, salads and more. Located in downtown in State college, 250 E. Calder Way. (814) 238-8463.

Say Sushi – Very good sushi and traditional Japanese hot dishes, located downtown in state college, 310 S. Allen Street. (814) 238-2244.

Spat's Café – Cajun & Creole cooking at its best! Full ball restaurant, open for lunch & dinner, and closed Sundays, 142 E. College Avenue. (814) 238-7010.

Tavern Restaurant – A State college & Penn State tradition since 1948. American cuisine, including steaks, seafood, pasta and poultry, located downtown, 220 E. College Avenue. (814) 238-6116.

ZOLA new world bistro – Fine dining with innovative, contemporary cuisine. Voted "best fine dining and best wine list" by State College Magazine. Reservation highly recommended, 324 W. College Avenue. (814) 237-8474.

Sports Restaurants: Champs Sports bar & Grill, Damon's restaurant, and Gingerbread Man.

Chain Restaurants: Olive Garden, Outback Steakhouse, Texas Roadhouse, Red Lobster, Hooters, Chili's, Applebee's, Ruby Tuesday, T.G.I. Friday's, P.J. Harrigan's, and Qdoba Mexican Grill, Chipotle, Backyard Burgers, Garfield's restaurant, and Ponderosa.

Various Casual Places: Home Delivery, Sarina's Pizza & Italian Restaurant, Brother's pizza, College Diner, Café 210 West, Monte Carlo's pizza, Denny's, Eat-n-Park, Little Caesars, Irving's, Panera Bread, D.P. Dough, Gumby's Pizza, Five Guys, College Buffet, Big Bowl Noodle House, Bill's Pickles Tap room, and Bar Blue & Bar Q.



NOTES





The Technology of Identification

Forensic DNA Analysis

Fairfax Identity Laboratories (FIL) provides, high quality, court-admissible, human DNA identification services to the medico-legal community. We can provide services one case at-a-time or can assist with reducing backlogs.

Full-Service Forensic DNA Laboratory Services

Forensic case processing

Case consultation, evaluation and screening

STR and Y-STR analysis

mtDNA analysis

Case interpretation, reporting, statistics and review

Expert witness testimony

High-throughput CODIS profiling

Forensic index (crime scene evidence)

Offenders index (convicted felons)

Visit Our Booth For More Information About LIMS!

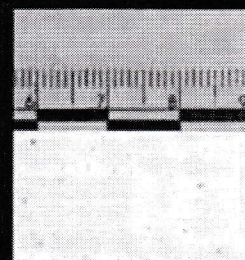
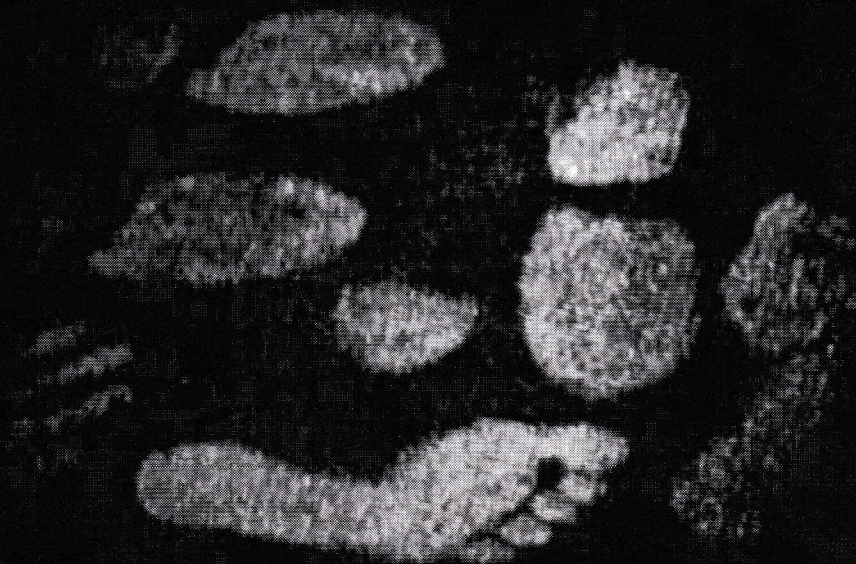
Fairfax Identity Laboratories

601 Biotech Drive • Richmond, VA 23235

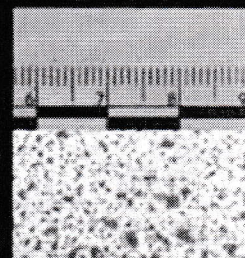
Phone 800.848.4362 • Fax 804.648.2641

www.fairfaxidlab.com

NS-42000-1000



ABASpray™



Traditional Sprayer

Hemascein™

To Reveal, Identify and Collect *Latent Bloodstains*

Sensitivity in Detecting Latent Bloodstains ... **2 to 5 Times More ✓**

DNA Recovery ... **Yes ✓**

Recovers Finer Detail ... **Yes ✓**

Longevity ... **Highest for it to be Photographed ✓**

Stable ... **7 yrs (Room Temperature) ✓**

Safety ... **Fluorescein is Routinely Used in Humans ✓**

Identify if Human Origin ... **Yes (Hematrace®) ✓**

Formulation ... **Fluorescein Containing Formulation (Aqueous) ✓**

Visit hemascein.com for more details



Serving the forensic community since 1996

Abacus Diagnostics • 6520 Platt Ave #220 • West Hills, CA 91387 • USA

Phone (818) 716-4735 • Toll Free (877) 225-9900 • Fax (818) 716-9471

Email: CustomerService@abacusdiagnostics.com • www.abacusdiagnostics.com