

## President's Message

*Joyce A. Lauterbach*

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### Nominations

The Nominating Committee, consisting of Farrell Shiver, Thomas Riley, and Chair Frank Hicks, have put together an excellent slate of candidates for Board of Director positions. Three positions are being vacated this year. My second term will expire, and Vice President Donna Eisenberg and Director Dennis Mooney will not be seeking a second term. Bios of six highly dedicated individuals who are willing to serve on the Board of Directors and ballot instructions are printed in this newsletter.

Since the last election, revisions have been made to the policies and procedures for nominations and balloting to allow for an electronic submission of your ballot. The new procedures no longer require that the only valid ballot must be mailed from Houston and must be returned in the enclosed self-addressed, stamped envelope with a stamp across the back flap of the envelope. Rather, ballots may be distributed in the ABFDE newsletter or obtained from the ABFDE website. All ballots, whether they are paper or electronic, will be received in the Administrative Office in Houston, where names and certificate numbers will be verified. Electronic ballots will be printed, and the Diplomat's name and certificate number will be removed from the bottom of the ballot prior to sending the ballots to the Nominating Chair. These procedures not only save mailing costs, they also bring us into the electronic age and allow for Diplomates who may be out of the office to gain access and submit a ballot on-line.

Thank you to Steven Drexler, Lisa Hanson, John Osborn, Kathleen Nicolaidis, David Sexton, and Grant Sperry for agreeing to consider a position on the ABFDE Board of Directors. Thank you, Thomas Riley, Farrell Shiver, and Nominations Chair Frank Hicks for an excellent slate.

### FSAB Complaint

On July 23, 2008 one past Diplomat of the ABFDE filed a complaint with the Forensic Specialties Accreditation

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# Nominating Committee

A. Frank Hicks  
Long Beach, CA

## Board of Directors

## Balloting Instructions

Committee: Farrell Shiver  
Thomas Riley  
A Frank Hicks, Chair

Instructions: Using the enclosed form or the ABFDE website, you may vote for up to three candidates or write in up to three Diplomates not listed. Any ballot with more than three names selected will not be counted.

Paper Ballot: Clearly mark your choices and include your certificate number. **Inclusion of your certificate number is a control for the ballots submitted, and is mandatory for your vote to be counted.** Mail the completed ballot to:

American Board of Forensic Document Examiners  
7887 San Felipe, Suite #122  
Houston, Texas 77063

On-Line Voting: Sign in to the ABFDE website (using the Members Only link from the homepage, <http://www.abfde.org>). From there, click on the link for the 2009 election ballot. Follow the instructions on the page and click submit. Ballots submitted online are automatically directed to the Administrative Office.

Please submit your ballot only once in either format; i.e., either by mail or from the ABFDE website.

Ballots must be completed by April 15, 2009. Paper ballots must bear a postmark no later than this date. Ballots not in compliance will not be counted.

**Editor** Lisa M. Hanson  
**Associate Editor** Jason Lee Miller

### Contributors

President Joyce A. Lauterbach  
Steven G. Drexler  
William J. Flynn  
Lisa M. Hanson  
A. Frank Hicks  
Dennis Mooney  
Kathleen Annunziata Nicolaides  
Larry Olson  
John Paul Osborn  
Thomas Riley  
David L. Sexton  
Rosalind Spencer  
Grant R. Sperry  
Diane K. Tolliver  
Rigo Vargas

**Composer**  
IntelliType

### 2008-2009 Board Officers

**PRESIDENT**.....Joyce A. Lauterbach  
**VICE PRESIDENT**..... Donna Eisenberg  
**SECRETARY** .....David L. Oleksow  
**TREASURER** ..... Jeffrey Taylor

### 2008-2009 Committee Chairs

**CONTINUING EDUCATION**.....A. Frank Hicks  
**CREDENTIALS**.....David L. Oleksow  
**FSAB** ..... Dennis Mooney  
**HISTORIAN** .....David L. Oleksow  
**NEWSLETTER EDITOR** ..... Lisa M. Hanson  
**PRC** ..... Donna Eisenberg  
**PUBLIC RELATIONS**..... Dennis J. Ryan  
**RECERTIFICATION** ..... Donna Eisenberg  
**RULES & PROCEDURES**..... Dennis Mooney  
**TEST PREPARATION & VALIDATION** ..... Carl McClary  
**TESTING**.....Donna Eisenberg  
**WEBMASTER** ..... William Leaver  
**WORKSHOP COORDINATOR**.....L. Jim Josey

### Send contributions to:

Lisa M. Hanson, Editor  
ABFDE News  
1031 Eagle Ridge Trail  
Stillwater, MN 55082  
Tel (651) 398-4549  
Fax (651) 793-2901

[lisa.hanson@state.mn.us](mailto:lisa.hanson@state.mn.us)

Deadline for the next issue is:

**June 20<sup>th</sup>**

[www.abfde.org](http://www.abfde.org)

# A Summary of the National Academy of Sciences (NAS) Report

by Lisa Hanson

## “Strengthening Forensic Science in the United States: A Path Forward”

Committee on Identifying the Needs of the Forensic Sciences Community,

Committee on Applied and Theoretical Statistics, National Research Council Copyright © National Academy of Sciences. All rights reserved.

Many, many things are stirring in the forensic world these days. Keeping up with them takes a sharp edge and a desire to read large amounts of text. The National Academy of Sciences (NAS) Forensic Sciences Report to Congress, released last week, is 253 pages with a summary portion of 24 pages. There are a number of issues raised by the report, that if taken out of context, we can anticipate might be used by attorneys to impinge your work, particularly those of us in the comparative sciences. I would suggest that you don't want your first exposure to be when a defense attorney plops the report down next to you when you are on the witness stand and refers you to a section that implies that what you do is not science. We will have to wait and see what actions Congress might take as a result of this report. However, after reading the report it will be very clear to all the directions our science(s) are going.

In short, here are the 13 bulleted “recommendations” (summarized a little by me), put forth in the report.

**Recommendation 1:** “To promote the development of forensic science into a mature field of multidisciplinary research and practice, founded on the systematic collection and analysis of relevant data, Congress should establish and appropriate funds for an independent federal entity, the National Institute of Forensic Science (NIFS).” NIFS should focus on a number of things, including establishing standards for the mandatory accreditation of forensic science laboratories and the mandatory certification of forensic scientists. NIFS would also be overlooking research and technical development, educational programs, additional funding for state and local forensic

science agencies, accreditation of forensic science programs in colleges and universities.

**Recommendation 2:** “The National Institute of Forensic Science (NIFS), after reviewing established standards such as ISO 17025, and in consultation with its advisory board, should establish standard terminology to be used in reporting on and testifying about the results of forensic science investigations.”

**Recommendation 3:** “Research is needed to address issues of accuracy, reliability, and validity in the forensic science disciplines.” Areas of research should include studies establishing the scientific bases demonstrating the validity of forensic methods; establish the limits of reliability and accuracy that analytic methods can be expected to achieve development of quantifiable measures of uncertainty and automated techniques capable of enhancing forensic technologies.

**Recommendation 4:** “To improve the scientific bases of forensic science examinations and to maximize independence from or autonomy within the law enforcement community, Congress should authorize and appropriate incentive funds to the NIFS for allocation to state and local jurisdictions for the purpose of removing all public forensic laboratories and facilities from the administrative control of law enforcement agencies or prosecutors' offices.”

**Recommendation 5:** “The NIFS should encourage research programs on human observer bias and sources of human error in forensic examinations.” Such programs might include studies to determine the effects of contextual bias and to what extent the results of forensic analyses are influenced by this bias. Based on the results of these

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# Forensic Specialties Accreditation Board (FSAB)

by Dennis Mooney

The annual Board of Directors meeting was held on February 15, 2009, in Denver, Colorado. Two specific topics relating to the ABFDE were addressed.

The first item was a proposal by the ABFDE Recertification Committee to adjust Diplomates' anniversary dates for recertification. Adjusting all Diplomates' anniversary dates to July 1 would allow a more uniform and efficient method for maintaining the points awarded for re-certification. The procedure would require that Diplomates earn an additional .67 of a point for each month that is added to their certification cycle to get to July. As an example, if a Diplomate was certified in February and their anniversary date was changed to July, this one-time adjustment would add five months to

his/her certification cycle. The Diplomate would need to have approximately 43 points instead of 40 points for recertification.

The FSAB Board approved the adjustment to the points-awarded time period. Having gained approval from FSAB, this one-time adjustment will be on the agenda for discussion, and additional details of this one-time adjustment will be provided after the ABFDE Board of Directors meeting in May 2009.

The second item was a complaint filed by a past Diplomate with the FSAB organization alleging that the ABFDE violated FSAB standards when handling a complaint filed against him by another ABFDE Diplomate. The FSAB Professional Review Committee found this complaint unsubstantiated. 

## President

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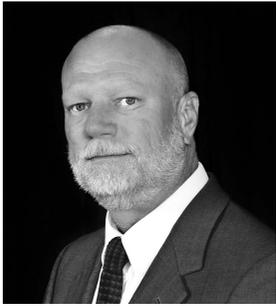
Board (FSAB). The ABFDE was notified of the complaint; and on January 5, 2009, a copy of the complaint was provided and a written response from the ABFDE was requested. The complaint, including attachments, was quite lengthy. Very briefly, however, the complaint alleged that the ABFDE grievance and disciplinary procedures are unfair; not objective; discriminatory and/or violate California State Law; did not maintain confidentiality; ignored scientific methodology; and did not convey or inspire confidence, competence, impartiality or integrity to interested parties. In a letter dated January 26, 2009, the ABFDE responded to each specific in the complaint. On February 23, 2009, the ABFDE received a letter from FSAB stating that the Complaint Review Committee, chaired by the FSAB vice president, had reviewed the complaint and the requested response from

the ABFDE. The FSAB Review Committee concluded that the ABFDE was not in breach of FSAB standards. The committee reported its conclusion to the FSAB at its Board of Directors meeting on February 15, 2009. The FSAB Board concurred with the committee report, and the complaint was dismissed.

ABFDE Professional Review Procedures have been in place since prior to 2000. Although some aspects of the Professional Review Procedures, especially a clause for mandatory arbitration, will be brought for discussion at the upcoming Board of Directors meeting in May, these procedures were initially and intentionally designed to be fair to all Diplomates. Every effort is made to maintain confidentiality so that even Directors who may not have been assigned to a Professional Review Committee do not know specifics (including names of any Diplomate who may have made a complaint or be the subject of a complaint) unless or until

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# Candidates for Board of Directors



## Steven G. Drexler

**Education:** University of Central Florida, BS Forensic Science (1980)

**Employers:** 2005-present examiner in private practice; 1996-2005: Alabama Dept. of Forensic Sciences: QD;

1985-1996: Alabama Dept. of Forensic Sciences: Trace Evidence; 1980-1985: Florida Dept. of Law Enforcement: Trace Evidence

**Experience:** Retired Senior QD examiner for the State of Alabama. Authored papers: "A Guide for Submitting Questioned Documents and Handwriting Evidence," American Journal of Trial Advocacy, 2002. "Ink Differentiation for the Fiscally Challenged," Journal of the American Society of Questioned Document Examiners, 2002 (Co-author). Active in the Graduate Forensic Science Program at the University of Alabama Birmingham, Cumberland School of Law and Jefferson State Community College. Participated in professional meetings with poster and oral presentations.

**Certification Date:** February 2002

**Prof. Memberships:** SAFDE, ASQDE, AAFS

**Contact Information:** (205) 685-9985  
info@drexdoclab.com

"As a member of the Board of Directors, I would continue to follow the direction set by past Boards by maintaining and building on the strong standards for certification and advancing education for the individuals practicing in the unique and exciting field of Forensic Document Examination. As a scientist, private examiner, educator and former government employee, I feel that I can bring a unique perspective to the Board on issues involving training and education, ethics, and current and new scientific advancements and court decisions. I would be honored, if chosen, to serve as a member of the Board of Directors of the (ABFDE)."



## Lisa M. Hanson

**Education:** University of Wisconsin, BS Biology, minor in Chemistry

**Employer:** Bureau of Criminal Apprehension Forensic Science Services, St. Paul, MN

**Experience:** 18 years, Bureau of Criminal Apprehension; 8 years, Toxicology and Crime Scene, 10 years, Questioned Documents

**Certification Date:** October 2006

**Professional Memberships:** ASQDE, Section Chair of MAFS

**Specialized Associations:** ASTM E-30 and E-30.02, Working Group Member for ASTM "Continuing Education" Guideline (2008), Secretary for Forensic Laboratory Advisory Board; Editor of ABFDE newsletter, TAC member of ASCLD

**Contact Information:** (651)-793-2898

Lisa.Hanson@state.mn.us

"Since my application for Board certification, I have benefited a great deal from the contacts I have made through ABFDE. I would support the Board's main objectives to continue the high quality of testing procedures and build upon the standards for qualification. I would also like to promote high quality continued education and training, as these two components together are essential for today's questioned document examiner in order to be prepared for various challenges in the courts. If selected to serve, I would be willing to accept any assignments or projects the Board deems necessary."

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## Candidates

(continued from page 5)



### **Kathleen Annunziata Nicolaidis**

**Education:** SUNY-Binghamton, BA (1983)

**Employer:** Affiliated Forensic Laboratory, Inc., Phoenix, AZ

**Experience:** 1998 – present

**Certification Date:** November 30, 2005

**Professional Memberships:** ASQDE, SWAFDE

**Contact Information:** (602) 241-1890  
kan@afl-qd.com

“ABFDE plays an important role, not only in certifying examiners, but in addressing issues that affect us all. I, like you, have benefited from the hard work of the testing committees, the workshop organizers, the FSAB representatives, the Daubert group, and the folks like Tom Vastrick who take the time and energy to pen articles when our profession is attacked. I figure it’s my turn to lend a hand.”



### **John Paul Osborn**

**Education:** Susquehanna University, BA (1982)

**Employment:** Self-employed (Osborn & Son)

**Experience:** 26 Years

**Certification Date:** 10/10/1990

**Professional Memberships:** ASQDE, AAFS, NEAFS, NJAFS, ASTM

**Contact Information:** (908) 206-9501  
www.osbornandson.com

“The ABFDE represents a time tested means by which professional competence in the field of forensic document examination can be established after training. Its re-certification program assures continued competence among diplomats and supports the various professional organizations by encouraging participation. The Board’s advocacy for the field is strong and viable. I believe that all of these attributes continue to exist as a product of a diligent volunteer directorship and, as a certificate holder for nearly 20 years, the honor of such service is an obligation I wish to fulfill.”

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## President

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such time that it may come before an oral panel for confirmation or denial of a PRC recommendation. The ABFDE takes exception with any allegation that it ignores scientific methodology when it is exactly those well known and established scientific fundamentals that the ABFDE and every Diplomat aspires to achieve and maintain. Other issues in the complaint to FSAB were previously addressed in the July 2008 newsletter response to a publicly distributed complaint from May 2008.

### **Directory of Diplomates & RPG**

In the last ABFDE newsletter I indicated that an updated and current Directory of Diplomates—the listing that contains our Diplomates’ addresses and phone numbers—

has been posted on the Members Only page on the ABFDE website. The current Rules and Procedures Guide is also posted on the ABFDE website. If you have not already done so, I encourage everyone to visit [www.ABFDE.org](http://www.ABFDE.org), print the current Rules and Procedures Guide and the updated Directory of Diplomates, and update your green book.

### **May Board of Directors Meeting**

The 2009 Board of Directors Meeting will be held on May 17, 18, and 19, 2009. If you have any items of concern that you would like the Board to take into consideration at this meeting, please contact me at (803) 253-3547 or at [joyce.lauterbach@ci.irs.gov](mailto:joyce.lauterbach@ci.irs.gov).



# f-Stops, EV's and HDR Photography

by William J. Flynn

This series of three papers results from research I have done concerning the use of High Dynamic Range Photography in questioned document applications. Along the way it occurred to me that concepts such as focal length, shutter openings, exposure values, and their relationships with HDR Photography and perception might be worthy topics of their own—hence this trilogy of papers has evolved. The first in the series deals with something all of us know something about—f-stops. Then again, do we really...?

Several years ago I wrote a paper that dealt with light, colors and filters. In fact, that was the title. What triggered that paper was a deposition of another forensic document examiner I happen to read wherein the testimony concerning the physics of ink differentiation by infrared examination was, for the most part, totally backward from what was really taking place. I have been contacted by more document examiners about that little paper than anything else I have ever written. In fact, Gerry Richards (retired from the FBI) and I coauthored a follow-up paper about a year later that covered additional topics dealing with infrared ink examinations. After some recent conversations with others in our field I realized that it is time for a similar paper dealing with the physics of photography.

Like most forensic document examiners, I have taken evidence photographs throughout my entire career—a time span of more than forty years. The cameras I have used during that time have evolved from large format 8 x 10 and 4 x 5 monsters through nearly every format of roll film, to (what has now become exclusively) digital. Of course, I'm not alone in this transformation; I expect that cost factors and convenience alone have moved all of us into the digital era. Today's digital cameras are truly amazing little light-gathering computers. They are no longer bound by the old traditional f-stops and shutter speeds we knew so well. Compared to 35mm cameras of yesterday, the new digital models can utilize (what would have been considered in the old days as) fractional f-stops and shutter speeds. For instance, I just looked at the metadata in one of my digital images and saw that the shot was taken at 1/125

sec @ f/5.1. The f/5.1 is an f-stop that would have been impossible on nearly all 35mm cameras just a few years ago. And that brings me to first question in our discussion — what is an f-stop (and why were the traditional values chosen)?

## What is an f-Stop?

An f-stop is a ratio. This ratio describes the focal length of a lens divided by the diameter of the shutter at any given setting. For instance, a lens with a 50mm focal length that has a shutter with a 25mm opening would be set at f/2 (50mm / 25mm). Likewise, a shutter would be set at f/4 on a 100mm lens with a 25mm shutter diameter (100mm / 25mm). That part is pretty clear-cut, just divide the lens focal length by the opening diameter of the shutter and that's the f-stop. Every photographer who has been around for a few years will recognize this series: 1.4, 2.0, 2.8, 4.0, 5.6, 8.0, 11.0, 16.0, 22.0, and 32. They are, of course, the classic f-stop values. But why these particular numbers? What do they actually represent? There are some simple reasons why the classic f-stop values are what they are, and some reasons that may not be so obvious. Let's look at why f/2.8 is actually half of f/2.

## Optical Halves

There are three ways to control the exposure of film or a light-sensing chip: 1) the length of time the shutter remains open (shutter speed); 2) the size of the opening that lets light in (the f-stop); 3) the speed of the film/sensor (what used to be the ASA rating - now the ISO). It is much easier to see that shutter speed values decrease in duration by a factor of 2 in the progression: 1 sec; ½ sec; ¼ sec; 1/8 sec; 1/15 sec, etc. than it is

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## Candidates

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### David L. Sexton

**Education:** Loyola College of Baltimore, BA Sociology, minor in Criminal Justice (1978). Attended Universities of Maryland and Baltimore.

**Employer:** US Immigration and Customs Enforcement

Forensic Document Laboratory

**Experience:** 31 years, Maryland State Police, Ran-Ton International Corporation (PI Agency), Maryland State Police Crime Laboratory Division, US Immigration and Naturalization Service Forensic Document Laboratory, US Immigration and Customs Enforcement Forensic Document Laboratory

**Certification Date:** November 30, 2005

**Professional Memberships:** IAI-CBD, MAAFS

**Specialized Associations:** ASTM, SWGDOC-Subject Matter Expert, ISO Assessor-Standards Council of Canada, Document Examiners Washington Area (DEWA), Maryland State Police Forensic Document Examiner Alumni Association (MSP/FDE/AA)

**Contact Information:** (703) 285-2482  
(703) 285-2208 fax  
David.Sexton@dhs.gov

“I would like to be a part of the organized group recognized for insuring standards of the profession that are exercised by those representing the field of forensic document examination. I would also humbly serve as a model for new examiners to suggest that whether you are new to the field or you have many years of experience that pursuit of certification by ABFDE not only gives you a sense of pride but a feeling of significant accomplishment. If selected to serve on the Board of Directors, I will do my best to represent ABFDE in an exemplary manner and to strive to build on the level of membership from those waiting for a kind word of encouragement to apply for certification.”



### Grant R. Sperry

**Education:** University of the State of NY, Albany, BS; Graduate studies through Central Michigan University

**Experience:** 1994-2009 FDE in private practice, 1992-2006 FDE with US Postal Inspection

Service Lab/Memphis, 1979-1992 FDE with US Army CID Lab

**Certification Date:** March 1, 1989

**Professional Memberships:** AAFS, QD Section, Fellow; ASQDE (past president); SAFDE; ASTM; SWGIT (charter member)

**Contact Information:** (901) 759-7759  
fdes@bellsouth.net

“The ABFDE has and will continue to face challenges as the premier FDE certifying board. I am honored to be a nominee for a position on the ABFDE Board or Directors and believe I have the demonstrated organizational and FDE experience, strong work ethic, innovative and problem solving skills, and a proven ability to be a contributor within a peer group and organization. If elected, I will be ever mindful of the trust placed in me by the Diplomates of the ABFDE to uphold the stated objectives and primary mission of the ABFDE in furtherance of the challenges and changes facing our profession.”



# Document Examination Demonstration at the Canadian Bar Association Annual Conference and Exhibition

by Rosalind Spencer

Within the Canadian legal system and judiciary there is limited understanding and variant interpretation of what forensic document examination (FDE) represents. Launching a more proactive outreach program, last August the FDE Section of the Laboratory and Scientific Services Directorate at Canada Border Services Agency (CBSA), exhibited at the Canadian Bar Association's Conference and Exposition.

The purpose was to provide reliable information to the Canadian legal community on the subject of FDE, including its scientific basis and how it can assist the judicial system in matters of disputed documents. In Canada, FDE is increasingly being requested by members of the judiciary and legal counsel for complex tax and criminal cases, without a good understanding of what FDE can provide.

Our stand had a professionally designed interactive look and feel, with instrumentation, props, posters, handouts and three FDEs. It being an August event, CBA delegates often travel with their families, and an unexpected bonus was the opportunity to demonstrate our profession to teenagers to encourage future recruitment possibilities.

The meeting was attended by a wide variety of people in the legal community including public and private sector lawyers (prosecution and defence), the judiciary and legal scholars. Most people had dealt with at least one case involving suspicious handwriting or signatures. Distinction between FDE, forensic accounting and graphology was made by us. Clarification on recognised qualifications that CBSA FDEs work toward, compared with those which some private sector examiners may hold, was provided. Examination techniques,

document integrity and other methodologies were discussed with those expressing an interest.

We provided the judiciary with literature describing examinations that can be performed and which qualifications are considered desirable. These included our bilingual in-house publication, "An Overview of Forensic Document Examination at the Canada Border Services Agency,"\* and the ABFDE brochure†. The influence of such literature on the future of FDE in court is unknown at this time, but it is hoped that it will assist the judiciary in weighing evidence presented by FDEs and distinguishing between those who are suitably qualified and those who are not.

\* This free publication may be ordered from R. Spencer upon request.

† A French translation is now available on the ABFDE website Members Only page.



## NAS Report

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studies, NIFS should develop standard operating procedures to minimize potential bias and sources of human error.

**Recommendation 6:** NIFS should have authorization and appropriate funds to work with the National Institute of Standards and Technology (NIST), in conjunction with government laboratories, universities and private laboratories and consultation with Scientific Working Groups, to develop tools for advancing measurement, validation, reliability, information sharing, and proficiency testing in forensic science and to establish protocols for forensic examinations, methods and practices.

**Recommendation 7:** “Laboratory accreditation and individual certification of forensic science professional should be mandatory, and all forensic science professional should have access to a certification process. ... No person (public or private) should be allowed to practice in a forensic science discipline or testify as forensic science professional without certification. ... All laboratories and facilities (public or private) should be accredited, and all forensic science professions should be certified, when eligible, within a period established by NIFS.”

**Recommendation 8:** Forensic laboratories should establish routine quality assurance and quality control procedures to ensure the accuracy of forensic analyses and the work of forensic practitioners.

**Recommendation 9:** “The NIFS, in consultation with its advisory board, should establish a national code of ethics for all forensic science disciplines and encourage individual societies to incorporate this national code as part of their professional code of ethics.”

**Recommendation 10:** NIFS should work with appropriate organizations and educational institutions to improve and develop graduate education programs designed to cut across organizational, programmatic, and disciplinary boundaries. These programs must also include attractive scholarship and fellowship offerings. NIFS

should also support law school administrators and judicial education organizations in establishing continuing legal education programs for law students, practitioners, and judges.

**Recommendation 11:** To improve medicolegal death investigations. Congress should authorize and appropriate incentive funds to the NIFS for allocation to states and jurisdictions to establish medical examiner systems, with the goal of replacing and eventually eliminating existing coroner systems.

**Recommendation 12:** To achieve nationwide fingerprint data interoperability. This, however, should not be seen as a latent print issue only. One section of this recommendation is that “baseline standards—to be used with computer algorithms—to map, record and recognize features in fingerprint images, and a research agenda for the continued improvement, refinement, and characterization of the accuracy of these algorithms (including quantification of error rates).” This could and should be applied to handwriting recognition applications also.

**Recommendation 13:** NIFS should prepare, in conjunction with the Centers for Disease Control and Prevention and the FBI, forensic scientists and crime scene investigators for their potential roles in managing and analyzing evidence from events that affect homeland security, so that maximum evidentiary value is preserved from these unusual circumstances and the safety of these personnel is guarded.

If you are interested in reading the report in its entirety, go to [http://www.nap.edu/catalog.php?record\\_id=12589](http://www.nap.edu/catalog.php?record_id=12589). You can buy the report as a pdf or hard copy. If you read toward the bottom of the report, you can download a free executive summary, or you can also read the whole report on-line for free. To find the four pages about questioned documents, start at [http://books.nap.edu/openbook.php?record\\_id=12589&page=119](http://books.nap.edu/openbook.php?record_id=12589&page=119) and then scroll forward for the following pages. Other questioned document references mentioned favorably can be found at [http://books.nap.edu/openbook.php?record\\_id=12589&page=149](http://books.nap.edu/openbook.php?record_id=12589&page=149).

# Sharing our Science with Science Teachers

by Diane K. Tolliver

For the second consecutive year, the Indiana State Police Laboratory in Indianapolis, IN, has hosted tours for an esteemed group of Indiana high school teachers. HASTI, the Hoosier Association of Science Teachers, Incorporated, convenes every year for the exchange of ideas and learning of new information. Their goals are to inspire those who “are involved in the advancement, stimulation, extension, improvement, and/or coordination of science education in Indiana...” They have an interesting website you may want to visit <http://ww.hasti.org>.

Last year there were no openings left among the three half-day tours that were offered. It was such a popular event that our building neighbors who share the other wing in our new building wanted to participate. The Indiana Department of Toxicology and the Indiana State Board of Health wanted to offer tours to HASTI participants, also. It is a great chance to show science teachers who they may have helped to inspire as they taught. If you ever have an opportunity to speak to a group of teachers, you may find that they are a fabulous group of listeners. That was my impression last year and this year.

The ISP Laboratory has been pleased to participate in HASTI's program for many reasons. Courtney L. King, forensic document examiner, is a co-sponsor of the event and a former member of HASTI. The other co-sponsor, Maranda Michael, a DNA analyst, has parents who are HASTI members. Our laboratory gets the opportunity to show science teachers the real-life science that we practice. We also get to showcase our two-year young building. Our lab moved from the east side of Indianapolis to its current location in downtown Indianapolis in January 2007. We are only a couple of miles from the hotel hosting HASTI.

Each of our six disciplines in the laboratory gives a 20 minute PowerPoint presentation. That presentation, as well as several hands-on activities, have been written to a CD that each teacher gets to keep. The teachers are interested in what types of courses help prepare students for the various forensic disciplines. They want to know our opinions on the type of undergraduate and graduate degrees that students should pursue if they are interested in a career in forensics. They also want to know how they can present a realistic view of forensics without the Hollywood glamour or CSI effect.

After each discipline has made a presentation in our conference room, the teachers are separated into smaller groups. Forensic analysts then take them on a tour of each of the three floors in our building. Our building was purposely built with a hallway down the middle of each floor. One side of the hallway contains analyst's administrative offices. The other side contains laboratory instrumentation. There are glass windows on both sides where visitors may be able to see examinations in process or analysts doing administrative work. This floor design allows work to continue when tours are being conducted without compromising the integrity of the evidence being worked on or the concentration of those conducting analysis. Each window also has blinds that can be closed when necessary.

The analysts who volunteered to conduct these tours took pride in their job and studied and quizzed each other on facts about other disciplines and facts about the history of the laboratory and forensic science in general. That was an amazing side benefit to this project. They wanted to become more knowledgeable forensic scientists outside of their comfort area of their own discipline!

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## f-Stops

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to see that f-stops also decrease in diameter by a factor of 2 in this progression: 1.4; 2; 2.8; 4.0; 5.6 etc.

One thing that is always confusing is that the f-stop **openings** get smaller as the numerical **value** gets larger due to the fact that the values are actually fractional denominators in a ratio. This is the same logic that makes 1/8 smaller in value than 1/5. As mentioned earlier, the f-stop numerical values are chosen because they represent the previous value by a factor of 2 (either twice as large or 1/2 as large depending on the direction). So why is it that f5.6 is twice as large as f8? The reason is that lens “area” is a two-dimensional calculation involving the radius of a circle whereas shutter speeds represent a linear progression of time duration. As everyone remembers from Jr. High School, calculations that solve for the area of a circle involve those messy square roots and the even messier irrational value, pi.

What the f-stops do is provide a series of optical halves, wherein each successive value allows 1/2 (or twice) as much light to pass through the lens. I have talked to many photographers over the years and read quite a few photographic texts but the following fact is almost never mentioned. **The classic f-stop values are all based on the irrational value, 1.4142135623 etc.—which is the square root of 2.** With some slight fudging, each f-stop can be derived by multiplying the previous f-stop by the square root of 2. For example, here is a series wherein each new value is the product of the previous multiplied by the square root of 2: 1; 1.41; 2.0; 2.82; 4.0; 5.66; 8.0; 11.3; 16.0; 22.6; etc.

These are, of course, the classic f-stop values. But why use the square root of 2 as a multiplier? And why do these numbers represent optical halves? Let’s take a look.

$A = \pi * r^2$  This formula tells us that the area of a circle is equal to the product of the square of the radius times pi. Using this formula a circle with a radius (r) of 10mm has an area (A) of 314.15 sq. mm.

$$A = 3.1415 * 10^2;$$

$$A = 3.1415 * 100;$$

$$A = 314.15$$

In the above example the circle has a radius (r) of 10mm or a diameter (D) of 20mm. So another way of looking at the problem is that a circle with a 20mm diameter will have an area of 314.15 sq mm. Suppose I want a circle that has twice the area (628.30 sq mm)? This could represent a lens opening that will let in twice as much light? The question is, how much does the iris in the shutter have to open in order to make the circle have twice as much area? We can use the same formula, but this time solve for the radius, “r”.

$$A = \pi * r^2$$

$$628.30 = 3.1415 * r^2$$

$$628.30 / 3.1415 = r^2$$

$$200 = r^2$$

$$r = \text{square root of } 200$$

$$r = 14.14$$

or a diameter of  $14.14 * 2 = 28.28\text{mm}$

Now you could go through all of this algebra every time you want to calculate the next doubling of the lens opening or you can use a much simpler method by simply multiplying the smaller diameter (20mm) by the square root of 2 (1.41421). This will also produce the larger diameter (28.28mm). **In other words you can double the area of a circle by multiplying the previous diameter by the square root of 2.** This little quirk obviously made a big impression on early camera makers.

Although it would have been just as easy to call the smallest f-stop on a camera “1” and the largest f-stop “8” (with 2,3,4,5,6, and 7 in between) those rascally optical scientists decided to use values starting with some integer over the square root of 2. Therefore, confusing generations of photographers who have to keep reminding themselves that larger numbers represent smaller openings and the number “4” printed on the aperture ring is actually double the opening of 5.6.

In the next issue: Exposure Values (EV) - What are they and what part do they play in photography and perception. 

## *Document Déjà Vu — What Was Old Is New Again*

# 67th Annual ASQDE Meeting

Larry Olson and Rigo Vargas, Program Chairs and Thomas Riley, Site Chair

The 67th Annual Meeting of the ASQDE will be held August 8-13, 2009, at the Ritz Carlton Hotel in Dearborn, Michigan. The theme of the meeting is, “Document Déjà Vu—What Was Old Is New Again,” alluding to the truism that things happen in cycles. When we revisit the familiar, we often come away with a new perspective. Several exciting presentations are anticipated:

### **“New” methods of document examination using old tools:**

- A half-day, hands-on workshop by Rob Radley and Brian Lindblom on the topic of “Indentations Sequencing” (determining the sequence of intersecting impressions and writing, which has been a subject of research by Rob and several others).

### **Revisiting the basics:**

- A half-day workshop on comparing the handwriting of a homogeneous population by Marie Durina of the San Diego Sheriff’s Crime Lab. Attendees will be given a sampling of writing from over 50 writers (and their teachers) taught the same copybook style at the same school. This research hopes to answer criticisms that studies on the uniqueness of handwriting (e.g., Dr. Srihari’s) did not include populations from “homogenous writing communities.”<sup>1</sup>
- A “Challenging Signatures” workshop with Frank Hicks (several interesting cases will be presented for review and discussion), and
- A panel discussion on the ins and outs of note-taking by Tom Vastrick and others including requirements, standards, and personal preferences.

### **Techniques for solving modern document problems:**

- A hands-on workshop on the Identification of Inkjet Printing, by Gerry LaPorte, lately

of the US Secret Service, Forensic Services Division. (As Gerry will soon be taking a position as Forensic Policy Program Manager with the Department of Justice/Institute of Justice, his participation will be contingent upon requirements of his new job.)

### **A look back and a look ahead:**

- A panel discussion titled “Evolution since ‘Exorcism’” with Mary Kelly, Kirsten Singer, and others. The year 2009 (besides being the 200th birth anniversaries of Darwin, Lincoln, and Poe) is also the 20th anniversary of the paper, “Exorcism of Ignorance as a Proxy for Rational Knowledge: the Lessons of Handwriting Identification ‘Expertise’”<sup>2</sup>. This panel will revisit what occurred a mere 20 years ago, and what progress has been made in the nature of research, standardization, judicial challenges and acceptance in court.
- This is also an appropriate time to discuss what lies ahead for the future, being the year of the National Academy of Science’s report on the state of forensic science. During a session titled, “After NAS, Now What?,” we will brainstorm preparing ourselves and our discipline for the present and the future.

### **Trainee breakout sessions, an event begun in 2008 will continue this year with:**

- A highly instructive (and entertaining) session by Susan Morton and Howard Rile on courtroom testimony; and
- An interactive session wherein two experienced examiners demonstrate how they

1 Michael J. Saks & Jonathon J. Koehler, The Individualization Fallacy in Forensic Science Evidence, *Vanderbilt Law Review*, 61:1:199-219, 2008

2 D. Michael Risinger, Mark P. Denbeaux, and Michael J. Saks, *University of Pennsylvania Law Review*, 137: 731, 1989

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## ASQDE

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each have worked the same QD problem (a reprise of last year's popular session with Jan Masson and Bob Muehlberger)

Papers and posters are also anticipated on a variety of interesting topics, including foreign handwriting, examining documents of foreign origin, and the use of statistics and Bayesian theory in document examination.

### General Requirements for Presentations and Posters

The Program Chairs will evaluate submitted presentation abstracts prior to their acceptance. For all presentations, an abstract must be submitted prior to the May 1 deadline. The abstract form, which can be found on the ASQDE website, must be filled out and have prior authorization by the Program Chair.

For many subjects, a poster presentation is the most appropriate venue for reporting on a subject or the results of basic research. As this year's program is heavy on audience participation through workshops and panel discussions, we will take full advantage of the poster sessions. We intend to devote enough time to this session so that members will have adequate opportunity to review each poster and discuss the presentation with the author. In addition, attendees are reminded, posters must have prior authorization from the Program Chairs to be able to participate in the program.

**As a reminder, ABSTRACTS are due by May 1, 2009 and...PAPERS are due by July 1, 2009.**

If you have concerns, questions or comments about the program, please contact Program Co-Chairs Larry Olson (at [larry.olson@ci.irs.gov](mailto:larry.olson@ci.irs.gov)), or Rigo Vargas (at [rigo.vargas@ci.irs.gov](mailto:rigo.vargas@ci.irs.gov)).

"Coming together is a beginning; keeping together is progress; working together is a success"

— Henry Ford



## Teachers

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Some of the forensic disciplines had demonstration tables where the teachers could actually take a fingerprint brush and powder to dust several non-evidential objects. At another station they were able to see firearms being test fired through an observation window. The Forensic Document Unit had its share of interesting pictures and displays for viewing. At the end of the walking tour, the teachers convened again in the conference room to pick up their CDs and other little memorabilia we may have on hand for them to distribute. They were asked to complete a survey that asks what they liked the best, the least, and ways we can improve our tours. If they want to schedule a tour for their classrooms, they are given information on how to arrange this. Generally, there are only two weeks during the year that schools are allowed to schedule walk-through tours within our laboratory.

If anyone is interested in receiving a copy of the CD that was presented at this year's meeting, send us a blank CD and we will copy the program for you. This should be addressed to Courtney L. King, Forensic Document Examiner, Indiana State Police Laboratory, 550 West 16th Street, Suite C, Indianapolis, IN 46202.



The Indiana State Police Laboratory moved into this new building in January 2007. The wing in the foreground is housed by the Indiana State Police Laboratory on all three floors. The wing in the background contains the Indiana State Board of Health and the Indiana Department of Toxicology.



# SOUTHWESTERN ASSOCIATION OF FORENSIC DOCUMENT EXAMINERS

## *“Meeting the Challenge”*

**Sheraton Los Angeles Downtown Hotel**

**711 South Hope Street**

**Los Angeles, CA 90017**

**(866) 716-8130 or (213) 488-3500**

**[www.sheraton.com/losangeles](http://www.sheraton.com/losangeles)**

**April 23 - 26, 2009**

In April 2009, SWAFDE will gather in Los Angeles at the Sheraton Los Angeles Downtown Hotel. This tentative program agenda is varied and covers topics that are sure to be of value to everyone.

### **THURSDAY, APRIL 23, 2009**

8:00-12:00	BOARD MEETING
1:00-5:00	TYPOGRAPHY GRIDS WORKSHOP (W. Flynn & K. Nicolaides)
Evening	PRESIDENT’S RECEPTION

### **FRIDAY, APRIL 24, 2009**

8:00-12:00	PATTERN EVIDENCE PANEL*
1:00-5:00	CHALLENGING TESTIMONY QUESTIONS (Discussion)

### **SATURDAY, APRIL 25, 2009**

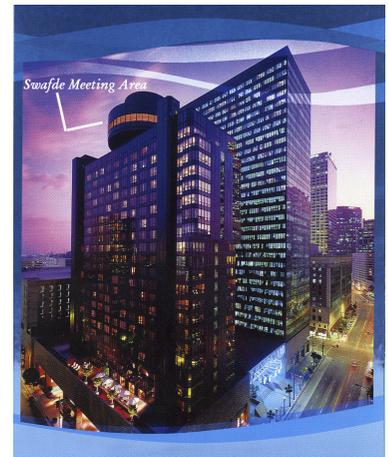
Morning & Afternoon	QD SUB-DISCIPLINE CASE EXAMINATION PRESENTATIONS**
	• TYPOGRAPHY (W. Flynn & K. Nicolaides)
	• RUBBER STAMPS (J. Kelly)
	• TYPEWRITERS/TYPEWRITER RIBBONS (P. Tytell)
	• COLOR PRINTERS/COPIES CPS CODES (J. Tweedy)
	• PRINTING PROCESSES/INK ANALYSIS (G. LaPorte)

### **SUNDAY, APRIL 26, 2009**

8:00-9:30	BUSINESS MEETING
10:00-1:00	MEMBERS’ PRESENTATIONS

Our recently renovated hotel is located in a busy, accessible area of Downtown Los Angeles. (Yes, Virginia, there really is a Downtown L.A.) The Sheraton is in the heart of the Financial District and sits atop the Macy’s Plaza Mall. It is less than a block from a subway stop allowing for easy access to area public transportation. (Who said L.A. has no public transportation?) Many attractions are within a few blocks of the hotel; other interesting activities are less than a couple of miles away, such as 7th Street Market Place (.2 miles), Museum of Contemporary Art (.2 miles), Staples Center (.3 miles), Music Center (.3 miles), and Olvera Street (2 miles).

The room rate is \$128 (plus tax)/night; parking rates are \$26 for overnight parking and \$10/day.



\*The panel, composed of forensic experts from the disciplines of trace evidence, latent prints, questioned documents, and firearms, will discuss some of the challenges associated with pattern evidence. Simon Cole, a law professor versed in the historical and sociological study of the interaction between science, technology, law, and criminal justice, will participate. He has spoken widely on the subjects of fingerprinting, scientific evidence, and science and the law; and he has consulted and testified as an expert witness on the validity of fingerprint evidence. This will be a friendly discussion and will be an opportunity for the experts and audience to express their thoughts, concerns, and suggestions.

\*\*The sub-discipline examination topics will be presented by various experts in forensic document examination sub-disciplines, who will take a case from the first contact to testimony. They will address the questions that should be asked and the various examination techniques and approaches used. In other words, these experts will take us through the how’s and why’s of working these types of cases.

# Continuing Education

A. Frank Hicks  
Long Beach, CA

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## *April, 2009*

16-17     **Southeastern Association of Forensic  
Document Examiners**  
Peachtree City, GA  
**Workshop: Examination of Inkjet Printers**  
Conducted by Gerry LaPorte  
Verle Truman (Program Chair)  
vtruman@ncdoj.gov  
Don Moryan (Site Chair)  
donald.moryan@us.army.mil

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## *April, 2009* (continued)

23-26     **Southwestern Association of Forensic  
Document Examiners**  
Los Angeles, CA  
**Workshop: Typography Grids Workshop**  
Conducted by Bill Flynn and Kathy Nicolaides  
Barbara Torres  
bltorres@lasd.org

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## *August, 2009*

8-13     **American Society of  
Questioned Document Examiners**  
Dearborn, MI  
Larry Olson (Program Co-Chair)  
larry.olson@ci.irs.gov  
Rigo Vargas (Program Co-Chair)  
rigo.vargas@ci.irs.gov  
Tom Riley (Site Chair)  
tporiley@aol.com

American Board of Forensic  
Document Examiners, Inc.  
Administrative Office  
7887 San Felipe, Suite 122  
Houston, TX 77063