WORKSHOPS:

LaPorte, Gerry

WORKSHOP: Authenticating Questioned Documents

Abstract: The objective of this workshop is to provide forensic document examiners (FDE) with an intensive overview of the various methods that can be used to authenticate and date questioned documents. The FDE will be exposed to a gamut of lecture material, adjudicated case examples, and practical exercises. A series of practical problems will be provided to all registrants prior to the workshop and fully discussed during the session. The material covered will include discussions and/or practical exercises pertaining to the following:

1. Different techniques used in writing ink analysis including static (e.g. comparison with a library of standards, identification of chemical tags) and dynamic (e.g. analyzing components of the ink that change over time) methods;
2. Limitations regarding ink examinations using a Video Spectral Comparator (VSC) when making conclusions regarding altered and/or obliterated entries;
3. Sequence of strokes;
4. The examination of paper including watermarks and the presence/absence of materials introduced after a certain date and;
5. The feasibility of dating inkjet and color toner documents based on static methods.

Purdy, Dan, Tobin Tanaka

WORKSHOP: Electrostatic Indentation Development - In Theory and In Practice

Abstract: Several topics concerning the restoration of indented writing will be discussed during this 2-hour presentation including:

- Historical Summary a review of early attempts aimed at restoring indented impressions in paper, the emergence of electrostatic techniques and specialized instruments designed for that purpose.
- Early Theories & Practical Considerations early theories that attempted to explain the electrostatic development of indentations and factors known to influence the quality of impressions developed by these methods.
- Recent Theories surface state theory, the findings of Lee & White, Seward and others who recently investigated the electrostatic development of impressions in paper.
- Physics and Materials Science basic principles of electrostatic and materials science that influence the development of indentations.
- Recent Research an outline of some of the work conducted by researchers at Canada Border Services Agency laboratory.

The presentation will be followed by a question and answer session, time permitting.
Rantanen, Walter of Integrated Paper Services, Inc.

WORKSHOP: Examination of Documents by Analyzing the Paper
Abstract: Analysis of the paper's characteristics and components can be a beneficial complement to the traditional methods for examining questioned documents. Some aspects of the analysis do not require destructive testing while other tests do need small parts of the document. Usually only small pieces of the paper can be sampled while avoiding any printing or writing on the document. A multitude of tests can be run on these small samples using light microscopy, spot tests, analytical instruments, and some comparison techniques. Some actual testing examples will be presented.

Presentations:

Aginsky, Valery
Current Methods for Dating Ink on Documents
Abstract: Five years have elapsed since this author presented a review of ink dating methods at the 60th Annual Conference of the American Society of Questioned Document Examiners (2002 Aug 14 18, San Diego, California). This paper focuses mainly on the ink dating techniques covered in the scientific literature since 2002. Some important older publications are also discussed.

Annunziata Nicolaides, Kathleen
Establishing the Reliability of Computer-Generated Line Spacing Grids and Developing a Methodology for Their Use In Case Work
Abstract: Examinations of computer-generated documents include measuring line spacing to determine the detection of inserted text. One tool developed by Flynn for these types of relative measurements was line spacing grids printed on acetate. Most typographic examinations require multiple grids. As examinations are conducted, new grids may be produced and used in conjunction with ones previously prepared and stored in a reference file. It is possible that, over time, an examiner will accumulate an extensive set of grids. Because previous research conducted by Annunziata Nicolaides and Flynn on the interline spacing of computer-generated documents showed that internal line spacing of different printers can vary even when set to the same leading, a study was designed to determine the reliability of a set of grids prepared on different printers. The line spacings of acetate grids also were studied to establish if inconsistent line spacing occurs due to the acetate stretching during the printing process and whether any inconsistency is significant enough to cause inaccurate measurements and conclusions. Based on results of this study, a methodology for producing and verifying grids is proposed for use in case work.

Anthony, Art
Digital Paper: Fad, Flop, or the Future?
Abstract: While conducting research for another presentation, I encountered an emerging technology referred to as Digital Paper. A Swedish company has developed a special paper that bears a patented gray pattern that can be read by a special pen. The company is known as Anoto, which name is derived from the Latin "annoto" or "I scribble." The printed background on the paper is comprised of a carbon-based ink referred to as Anoto Black, which is claimed to be barely visible to the naked eye but, more importantly, is visible in the infrared region of the electromagnetic spectrum. The pattern is actually a map comprised of tiny dots configured in square grids arranged asymmetrically in a specific order on an X/Y axis. The grid squares are 2x2 mm with 36 dots per grid square. Each square contains a unique pattern and is part of an overall proprietary map. A complementary metal-oxide-semiconductor chip
(CMOS) in the pen reads the dot pattern and stores (the formation of) what is being written. It should not be confused with handwriting recognition or OCR software. At least one Anoto partners have developed algorithms for handwriting recognition specifically intended for medical recordkeeping. The pen uses regular ink, but only so the writing is visible to the user since the chip is not actually recording the handwriting but rather the dot pattern on the paper, then converting the movement of the pen across the map to digital images. The use of digital paper is potentially endless. Coupled with Bluetooth technology, pens can be used to jot a note and send as an email without the need for a PC. Pens can store approximately 40 pages of writing and through the use of a docking station, download to a PC for storage or transmission as a PDF file. This paper will discuss in detail how the paper and pen work and the technology's impact on the discipline.

Beal, Bonnie

The Next Wave from the Critics

Abstract: The defense for a case that was going to trial hired Professor Denbeaux. Before a hearing Professor Denbeaux provided a "test" he had conducted utilizing the CTS 06-524 proficiency examination. This presentation will provide the document examiners with a copy of this "test" and go over the results.


Quantitative Hyperspectral Imaging Measurements: A New Non-Destructive Tool in Forensic Document Analysis

Abstract: Multispectral imaging devices are well-established non-destructive tools in forensic lab and field applications. Especially in forensic document analysis they are frequently used to obtain valuable image information about features that are invisible or indistinguishable for the naked eye. However, such devices are only suitable for a qualitative assessment and comparison of the spectral images, which means that they use only a small portion of the spectral information that could be retrieved from questioned documents.

We report on the development and initial testing of the prototype of a new generation of hyperspectral measurement instruments that provide quantitative spectral image information on a multitude of wavelength channels. The accurate calibration of the spectral images from this new instrument makes it possible to discover and fully exploit correlations of information contained in several channels. The quantitative hyperspectral imaging instrument developed by Demcon BV measures 70 reflectance and 110 fluorescence/luminescence spectral bands in the wavelength range from 365 to 1100 nm, thus covering the near-UV, visible, and near-infrared parts of the light spectrum. Through accurate calibration to spectral standards, for each of these spectral bands a 4-megapixel grayscale image is generated, which represents the distribution of the reflectance or luminescence of the investigated document area at the corresponding spectral band. The images of all spectral bands of a measurement cover exactly the same document area, so that for any pixel coordinate, the spectral values correspond to exactly the same small region on the document. This is an important prerequisite for applying mathematical algorithms that combine correlated information that is spread over several or many spectral channels. For example, if two inks show only very small differences in the spectral reflectance that would go unnoticed when looking only at any particular channel, they may still be distinguishable easily when combining the information of multiple spectral channels.

In addition to this considerable improvement of sensitivity, this novel approach to spectral imaging as a quantitative measurement technique offers a number of other important advantages.
Firstly, the calibration of the measurement data makes the results obtained from different samples comparable, even if they cannot be measured simultaneously. It thus becomes possible to compare a sample from a present case with those of earlier cases, or even to build databases with reference measurements. Because these measurements are all calibrated to general physical quantities such as the spectral reflectance, the results from different instruments are comparable and can contribute to the same homogeneous database.

The second advantage of quantitative hyperspectral imaging is its possibility to optimize the workflow of a case investigation. The tasks of measuring a document sample and of analyzing the results with respect to particular forensic questions can be distributed over time, location and amongst the personnel. After having measured all spectral bands of a document in a single, relatively short session, for the subsequent off-line forensic analysis of the data the document itself is no longer required. This means that the document can very quickly be made available for further processing with other, possibly destructive analysis techniques. It is even possible to revisit the measurement data at a much later stage of the document analysis to follow indications that may come from other analysis techniques or new questions that may arise from other circumstances of the case.

In the presentation, we are going to introduce the working principle of the new hyperspectral imaging instrument and discuss some data analysis methods that can be applied to the measured data. We are going to present examples of initial tests on distinguishing inks and enhancing the visibility of faint features on documents.

Blake, Martha

Ranking Handwriting Attributes in the Signatures of One Person: A Survey of Forensic Document Examiners

Abstract: Properly trained and experienced Forensic Document Examiners possess the skills necessary to evaluate and rank handwriting attributes in signatures for their discrimination potential. Given a series of known signatures of one person, my hypothesis was that examiners would rank these attributes in a similar manner. Eight collected signatures of one person were submitted to examiners along with a survey and instructions for ranking the various handwriting attributes present. The survey results demonstrated general consensus among examiners for most of the attributes and excellent consensus among the examiners for some of the attributes. The results of the survey will be presented.

Burkes, Ted

Photocopies, an Identification, and the Pretender

Abstract: As a result of flying in restricted airspace, the Federal Aviation Administration suspended a pilot's Air Transport Pilot certificate for 180 days. The pilot appealed the suspension to a National Transportation Safety Board Administrative Law Judge. This pilot offered a Release of Liability signed by a student pilot as part of his defense. The photocopied Release of Liability (the original was purportedly given to the student pilot) and two photocopied known signatures were examined by a board certified forensic document examiner with over 40 years of experience. He concluded that, based on the two known signatures, the signature on the Release of Liability was prepared by the student pilot. The presenter's examination and proposed testimony refutes this claim of identification.
Eggleston, Charles

**Elementary Stereomicroscopy for Forensic Document Examiners**

Abstract: Next to the magnifying glass, the stereomicroscope may be the most widely used scientific instrument by forensic document examiners. The instrument permits the examiner to extend her/his normal vision into the microscopical realm. This presentation covers some basics of stereomicroscopy including modern instrument nomenclature, magnification, field of view, resolution, working distance, and incident light illumination. It also includes suggestions on practical and ergonomic usage, and digital photomicrography.

Estabrooks, Colin, Robert Vallieres, Christine Warias, Ian McGilvary, Susan Thompson

**Document Linking System (DLS)**

Abstract: The Document Linking System (DLS) is an image-search database for tracking identifying features that are observed on documents. The database can save and search such features as static laser trash marks, drum defects, linear markings, typescript and other single impact defects, etc. This system has provided the means by which to search against a large volume of documents and make links between documents based solely upon the signature imparted on the documents by the business machines that produced them.

Foley, Robert G.

**Wearing Two Hats**

Abstract: Presentation and testimony regarding self-serving e-mails lead this attorney and client to suspect fabrication and/or alteration. During an overnight recess, this document examiner examined the e-mails and confirmed they were indeed altered. There was insufficient time to retain an expert. Obviously, I could not act as an attorney and an expert in the same trial. As a last resort, a decision was made to indoctrinate the client to point out (utilizing demonstrative evidence) and comment about the observed discrepancies. Over the objection of the Defendant, the testimony was allowed. The result was so prejudicial to the Defendant that he made a spectacular Perry Mason admission while on the stand and under oath.

Frost, Bridgette Trela, Jeffrey Bell

**The Role of the Slit Glass in a Photocopy system and Its Effect on Photocopied Documents**

Abstract: Forensic document examiners are very familiar with print system defects. Print defects in a photocopy system are commonly referred to as trashmarks and can originate from various components of the device, such as the drum, platen, or blanket. These trashmarks can be individualizing and can lead to a common source determination. Advances in digital photocopier technology have changed the configuration of many copiers to include a scanner glass or slit glass. The slit glass is the scanning surface used in conjunction with the automatic document feeder (ADF). When the ADF is utilized on a digital copier equipped with a slit glass, the main glass platen is not involved in the copying process. In contrast to the traditional configuration of a stationary document and a moving imaging device, this system has a fixed imaging device while the document moves over the slit glass. This configuration change has an impact on photocopier defects and their role in photocopy comparisons. This presentation will discuss how the slit glass is utilized in the copying process and how and why defects will manifest themselves differently.
Hammond, Derek

The Bulbrite® R-25 Blacklite- Discriminatory Power in the Differentiation of Blue Ballpoint Pen Inks

Abstract: The Bulbrite® R-25 Blacklite was distributed to attendees of the 2006 Annual Meeting of the American Society of Questioned Documents. Previously, an anecdotal report had been provided which provided support for the use of this light source in the differentiation of writing instruments. Notwithstanding this report, data concerning the discriminatory power of this light source in the differentiation of ballpoint pen inks has been unavailable. In an attempt to begin to address this issue, 47 blue ballpoint ink pens were obtained and used to create 1128 pen-pair samples for analysis using the Bulbrite® R-25 Blacklite. No erroneous findings of “different” were reported following the examination of the known pen-pair combinations in which the same pen was used to create the samples (N=47). Of the remaining 1081 samples, 942 pen-pair samples were differentiated using the Bulbrite® R-25 Blacklite, while 139 samples were unable to be differentiated. Comparison of these results with results obtained through additional testing using other non-destructive test methods (e.g., infrared reflectance, infrared luminescence and LAB color mode) showed that the Bulbrite® R-25 Blacklite differentiated 22 pen-pair samples (2%; 22/1081) that were not differentiated using either of the other techniques tested.

Hammond, Derek

Validation of Lab Color Mode As a Non-Destructive Method to Differentiate Blue Ballpoint Pen Ink

Abstract: The use of Adobe Photoshop has emerged in recent years as a tool for forensic document examiners to use when attempting to discriminate between writing instrument inks. Although various methods and techniques using Photoshop appear to be viable, the literature lacks the empirical data to justify the use of many of the techniques. Without adequate data, the validity and reliability of these techniques, including the use of lab color mode to discriminate between different blue ballpoint pen inks, cannot be established. In an attempt to begin to address this issue, 47 blue ballpoint ink pens were obtained and used to create 1128 pen-pair samples for analysis using established lab color mode techniques. No erroneous findings of "different" were reported following the examination of the known pen-pair combinations in which the same pen was used to create the samples (N=47). Of the remaining 1081 samples, 757 pen-pair samples were differentiated using the lab color mode method, while 324 samples were unable to be differentiated. Comparison of lab color mode results with the results obtained through additional testing using traditional infrared reflectance and infrared luminescence test methods showed that lab color differentiated 63 pen-pair samples (6%, 63/1081) that were not differentiated using a VSC-4C.

Hanson, Lisa

Proof of a Forgery

Abstract: A young male was arrested for robbing and assaulting a pizza delivery man with a machete. Before the criminal case could begin, the age of the young man accused had to be authenticated. His MN driver's license had his age listed as 18 years; however his Jordanian Birth Certificate had his age listed as 16 years. This presentation will cover the examinations performed and the steps taken attempt to authenticate his MN driver's license and/or his Jordanian Birth Certificate.
Kelly, Mary, Andrew T. Szymanski

**The Role of Technical Review in Forensic Document Examination**

Abstract: Technical review is the process whereby the underlying data, which forms the basis of a scientific conclusion, is evaluated and scrutinized. It is a systematic review of the techniques, methodology and documentation which form the basis of the scientific findings in a particular case. To conduct accurate technical evaluations, the reviewer must have the necessary expertise and knowledge of the discipline to verify that the conclusions reached are indeed supported by the data presented.

ASCLD/LAB, which has been on the forefront of mandating technical reviews, states that they are an essential component of quality assurance. Their guidelines further state that technical reviews do not shift the perceived responsibility for the scientific findings from the examiner to the reviewer. Many suggested roles of the reviewer have been put forth by members of the scientific community and their critics alike. The role of the Forensic Document Examiner reviewer and the concept of confirmation bias will be explored and differing views discussed.

Lee, Jr., F. L. Jim, Kristina White

**New Document Security Features, In Theory and in Practice**

Abstract: With the increased awareness of the importance of document security, issuing organizations and manufacturers have introduced a variety of more sophisticated techniques to protect documents. This presentation will review some of the technologies used and how they may be examined.

Lines, Sandra Ramsey

**A Thumbnail Sketch of Islam and Judaism as They Relate to Forensic Document Examination and the Courts**

Abstract: Islam and Judaism, like Christianity, contain different sects, branches, and cults with their own sets of beliefs and doctrines. This paper was not meant to be an all-encompassing treatise on these two world religions. It is only a thumbnail sketch covering certain religious laws for Muslims and Jews that have caused concerns for courts in America and elsewhere. The laws discussed pertain to examinations the forensic document examiner may encounter relating to such documents as Wills, marriage/divorce agreements, and business records.

Lyter, Albert H.

**Determination of Line Sequence - A Blind Study**

Abstract: One of the problems that has plagued examiners, since the inception of the practice of the examination of questioned documents, is the determination of the sequence of preparation of lines that intersect. Many different procedures and techniques have been written about in the literature or presented before august bodies such as this one. These techniques have included simple microscopic examination, the use of various light sources, the treatment of a line crossing with types of coated paper or chemicals and the use of more sophisticated instruments such as a Scanning Electron Microscope or Laser Profilometer. All of these techniques were reported as "useful" or "reliable" for the determination of line sequence, but the report of any studies that tested these claims or measured the level of "usefulness" is sorely lacking in the literature.

This study was undertaken to attempt to remedy this oversight. With the aid of a group of competent examiners, aware of the pertinent literature, a study was undertaken to "test" the ability to determine a
line sequence. It was not the intent to "test" any of the participating examiners and in fact their anonymity will remain.

The samples were generated by 4 competent examiners using any writing instruments at their disposal to construct 10 line crossing problems on a single sheet of paper. The type of paper to be used or the type of writing instruments used was not specified. The only limitation was that only writing instruments were to be used, no typing or printing, and all line crossing problems were to fit on a single page. The samples were compiled by the author, without the knowledge of the actual sequence of preparation of the intersecting strokes, and distributed to 6 different examiners for analysis. The examiners were permitted to use any examination methodologies and were asked to either determine the sequence or report an inconclusive result. These results were then compiled and distributed to the examiners that constructed the problems for grading.

The results of this study correlate the type of line sequence problems with both the examination methodologies used and the level of confidence of the determinations as measured by the percent of correct answers.

It is clear that the problem of line sequence determination and the appropriate testing methodology, has not been reconciled, but this study is a step in the direction of educating the profession and providing a scientific background for the use of these techniques in court situations.

Mohammed, Linton, Bryan Found, Doug Rogers

**Frequency of Signature Styles**

Abstract: This paper looks at the frequency of signature styles in San Diego County. Fifteen hundred signatures on Juror Summons forms were examined. They were classified into three types: text-based (each letter can be read), mixed (two or more letters can be read), and stylized (one or no legible letters can be read). A statistical determination of relationships of each style to gender and ethnicity was made.

Moore, David

**The Invalid Application of Valid Techniques**

Abstract: A disturbing trend has been observed in which certain Forensic Document Examiners have inappropriately used valid techniques in an attempt to support incorrect conclusions. This paper addresses that issue by reviewing an actual civil case problem that involved intersecting lines and whether a signature had been affixed before or after some specific typing occurred to a questioned document. The methodologies and the techniques employed by the examiner to arrive at a finding favorable to the client will be discussed. While the methodologies and techniques themselves are recognized as having legitimate applications in forensic document examinations, their manner of use and application in this particular problem were not appropriate.

Morin, Darlene

**The ImageXpert Meets the ESDA**

Abstract: The Gradient® is an innovative tool that can be used to create test strips to monitor the performance of Electrostatic Detection Devices such as the ESDA, IMEDD or Vacu-Box. Since these instruments are not regularly calibrated or serviced by an outside vendor, it is primarily the responsibility of the examiner to validate the equipment prior to starting their examination. While the main purpose of this paper is to assess the reliability of this instrument in creating suitable test strips, analysis will also be conducted with the ESDA and ImageXpert to determine which instrument is more
effective in detecting indented impressions. A statistical summary of the data that is generated will be presented.

Moussa, Candice, Paul Westwood, Michelle Novotny

Ink and Toner Sequencing - Further Research

Abstract: Michelle Novotny and Paul Westwood published a paper in the ASQDE Journal in 2005 titled "Determining the Sequence of Original Ink Writing and Toner Printing". As at the date of this abstract, further research on this topic using ESDA, VSC and Raman spectroscopy techniques is being finalised. The paper will document the results of this research.

Muehlberger, Robert

Decision Making of the Forensic Document Examiner in the Presence of Uncertainty

Abstract: The Forensic Document Examiner (FDE) is routinely confronted with problems, especially in signature and handwriting comparisons, where the absolute truth is not known yet require decisions in either the positive or negative. The cognitive act of determining whether a signature is genuine or not or whether a set of handwriting was or was not written by an individual is subject to the risks of false positives and false negatives. The process of examining signatures and handwriting, determining the strength and significance of observable features and characteristics, making comparisons with known exemplars, and the rendering of findings can be analogous to what is referred to as signal detection theory.

The starting point for signal detection theory is that reasoning and decision making based on sensation and perception takes place in the presence of some uncertainty. Two important components of the decision making process are information acquisition and criterion. The process of examination by the FDE allows for the acquisition of information on the features and characteristics of the writings, while the training and experience of the examiner provides for the criterion of how significant the features and characteristics are in determining identification or elimination. In practice however, the FDE is not always able to render a decision in the absolute positive or negative and, based on the strength of the handwriting evidence, will give a qualified finding as to the probability the evidence supports either one of the two premises. Contributing to the amount of uncertainty is what is referred to as noise. In forensic document examination this can be a lack in the quantity or quality of the evidence being considered.

This paper will briefly explain signal detection theory and its language and provide examples of forensic document problems and analyze the decision making process in the presence of uncertainty.

Orta Martinez, Raymond J., Magdalena Ezcurra Gondra

Neurosciences Applied to Handwriting Examination

Abstract: Some difficult cases for Forensic Document Examiners (FDE) can be related to brain illnesses that affect the handwriting. The Handwriting as a brain governed function has been studied by medical science since many years ago. Those studies could be crucial to guide the expert to causes of variability in handwriting. A. R. Luria was a Neuropsychologist at the University of Moscow who studied consequences of different injuries in the human brain. Part of Luria's work focused in the handwriting of brain wounded patient's during World War II. Our objective is to review some of the most relevant Luria's findings compiled in the book The Working Brain, An Introduction to Neuropsychology.
will include other Neuroscience findings from other authors who studied handwriting from a medical point of view.

Parker, Joseph L.

Examining PDF Files and Associated Documents

Abstract: A recent case inquiry posed the question of whether it was possible to compare a printed fraudulent document its purported PDF source file to confirm a suspect's claim of how he created the questioned PDF file document. Recalling a case that involved a technique to recover redacted text from a PDF file that was released to the news media by the U.S. Government, the redaction recovery technique was applied in research for this new case. Research confirmed that it was possible to determine elements in the creation of some PDF file documents. This presentation includes technical information on PDF files, current PDF software applications, and summary details of the research conducted.

Ross, Jim

Authentication of U.S. Visas Using an Automated Image Quality Inspection System

Abstract: This study details efforts to discriminate high-quality counterfeit visas from genuine documents using the ImageXpert Full Motion System. A comprehensive sampling of genuine U.S. Visas was measured and analyzed using the image quality assessment tools of the ImageXpert System software. Information collected was used to populate a database consisting of known print quality attributes, which served as the basis for the comparison.

Shlafer, Tatiana

A Method of Statistical Evaluation of Handwriting Characteristics developed in Russia

Abstract: Document experts providing the examination of handwriting evaluate the individual characteristics according to their own experience. Deciding which characteristics are more significant presents difficulty to the examiners with limited experience.

A methodology developed in Russia is intended to assist document examiners in the stage of evaluation of similarities and differences in the handwriting. It employs tables of statistical frequency of individual characteristics derived from examination of representative handwriting samples in Russian.

Although this method of evaluation of individual characteristics in the handwriting cannot substitute for personal experience of the document examiner, the values assigned to characteristics based on statistical probability of their occurrence help the examiner to evaluate significance of these characteristics. Moreover, it helps to visually illustrate the process of identification and justify the conclusion in courts.

Stockton, Anthony

Accredited Methods in Forensic Document Examination - What Does It Mean For You?

Abstract: Many organizations are becoming ISO accredited for their methods and procedures in Forensic Document Examination. Whilst this is often driven by management, this paper outlines the advantages and disadvantages to the practitioner. The author has provided consultancy to a number of Documents departments and their examiners about the day to day changes necessary to work under
accredited and auditable methods. The author believes these are of benefit to all examiners, whether working in a government department or in private practice.

Throckmorton, George J., Bill Flynn
Dead Lee Scroll
Abstract: On January 22, 2002 a U.S. Park Ranger found a rolled-up lead scroll in an old abandoned fort in Lee's Ferry, Arizona. The scroll was signed "J.D. Lee" who was the only person ever convicted in the killing of more than 120 people, in what history calls the "Mountain Meadow Massacre."

The context of the scroll, which was dated 1872, indicated that Brigham Young ordered Lee to kill all of the people in a wagon train traveling through the Utah territory. Several books have been written about the massacre, and Hollywood is presently making a motion picture which is to be released sometime this year. History was uncertain as to who actually ordered these killings and the recently found scroll was very adamant that Brigham Young issued the orders.

The lead scroll was first submitted for analysis to Arizona State University and Washington State University, who believed it to be genuine. It was later submitted to Forensic Document Examiners Bill Flynn and George Throckmorton for further analysis on this interesting lead "document."

This presentation will discuss the five aspects used in the examination of this "document" as done by the two forensic document examiners including: provenance, writing materials, handwriting, writing instrument, and linguistics.

Vastrick, Thomas W.
Case Review: Standardization of Methodologies
Abstract: Case review has been used in our profession for decades. However, experience illustrates that document examiners do not use or recognize standard methodologies of case review. this paper will examine the role of case reviews, the various forms of case review, and the methodologies that this author recommends as a basis for the standardization of the practice.

Witherspoon, Cindy
The Zodiac Ciphers: A New Interpretation
Abstract: Between 1969 and 1974, the Zodiac serial killer terrorized and taunted the citizens of the California Bay Area with a series of murders and letter correspondences that included a total of six ciphers. The first decoding of these ciphers was published on August 9, 1969 in the San Francisco Chronicle. The additional three have never been solved; despite efforts by the Central Intelligence Agency, the Federal Bureau of Investigation, and the National Security Agency.

Through visual document examination techniques, a new decoding of the Zodiac ciphers is purposed through analysis of the habitual formatting in the letter correspondences. This decoding has led to results for each of the six ciphers and has been validated through the actions and letters of the Zodiac during this time period. It is theorized that through forensic document examination techniques, new interpretations of the Zodiac ciphers have been established.
Yang, Chiew Yung, Gek Kwee Lee, Bei Sing Yap, Le Tiang Wong-Lee, Sock Kim Tan  
**Simulation of Signatures in the Form of Regularly-Written, Simple Chinese Characters**

Abstract: Are simple signatures written in the form of regular Chinese characters more easily simulated than those written in a cursive manner or incorporating some form of design? Would it be possible for simulations of such signatures to be accepted as genuine? Among the simulated signatures collected from one hundred and eight participants and analysed in this study, the findings indicate that none of the imitations could have been accepted as genuine in view of the poor fluency, differences in line quality and features falling outside the range of natural variation of the writer. This shows that even for a simple signature comprising few strokes, it would still be difficult to simulate it accurately and fluently to such an extent that it would escape detection by a forensic document examiner’s trained eye. However, in view of the differing range of natural variation for different writers, it would be prudent to exercise greater care in the examination of such simple signatures.
POSTER PRESENTATIONS:

Czermak, Mary Ann
**Digital Photography (comparisons to traditional photography, benefits for the FDE)**
Abstract: Starting point of the digital image and introduction of some historical background. Print film versus digital; how the image is recorded; resolution and its various aspects. Benefits or concerns to the FDE. How to choose a camera, ISO settings; a word about lenses; the importance of white balance and how long can one expect a digital camera to last? A brief mention of inks and the longevity of prints. Digital photography is here to stay, not least due to the ease to achieve pleasing results by the average photographer.

Daniels, James R.
**Pen Angle Information in Ballpoint Writing**
Abstract: Lines written with ballpoint pens exhibit occasional irregularities at certain predictable formations that furnish information regarding the approximate pen angle at the time the pen negotiated the particular maneuver. Certain inferences are thereby made possible regarding handedness of the writer as well as allowing particular candidate writers to be included or excluded. A microscopic study was made of signatures and other writings to investigate the reliability of these indicators.

Doherty, Paige, Bryan Jordan
**To Bind or Not to Bind, That is the Question**
Abstract: Forensic document problems arise where an examiner attempts to determine whether alterations or additions have been made to documents bound into a book form, such as stock offerings, corporate reports, manuals, and brochures. More specifically, indented writing examinations may assist in determining whether handwritten entries were produced on stacked pages before binding, on the pages after binding, or on rebound pages.

This study evaluates the value of indented writing examinations on this type of evidence by testing ten 60-sheet perfect bound books containing handwritten entries throughout. All of the books contained handwritten entries generated both before and after binding. The spines of three of these books were later trimmed and handwritten entries added to inserted pages before being rebound. Various factors, such as page shift during the binding process, page repositioning during the rebinding process and paper positioning by the writer, were considered.

Geiman, Irina
**Proof of Concept Testing for In-House Production of a Device for Producing Consistent Control Indentations for EDDs**
Abstract: Various in-house constructed devices for producing consistent control indentations for testing an electronic detection device (EDD) were evaluated. Evaluations were conducted by varying pen pressure (point load), pen type (fine point or medium point), writing surface and substrate, and techniques for production of the control indentations. The testing indicated that this kind of device can produce the desired results with the advantages of being inexpensive to manufacture and easy to maintain; however, some operator experience is required to increase consistency.
Holland, Neil

The Use of the Camag TLC Scanner in Ink and Paper Analysis Cases

Abstract: Ink and Paper examination and analysis cases require various techniques to determine the optical properties, physical appearance of the ink lines or printed image and the chemical constituents of the paper and inks and various techniques are detailed throughout the literature, but the use of the CAMAG TLC SCANNER is underestimated in assisting in these cases.

This poster highlights a number of cases whereby this scanner has been used successfully in determining the absorbance of various ink types (writing, printing, rubber stamp) by analyzing the ink directly on the document as well as providing an analysis of the optical properties of the dye/pigment constituents of any subsequent HPTLC separations.

Lauterbach, Joyce

Unusual Printer Defect

Abstract: Embedded text was found on two facsimile documents. The source of the embedded text was contained within the same document and appeared approximately 3 above and to the left of the defect. The defect was repetitive, appearing twice on each page.

A probable cause for the defect lies within the SCNT Board. SCNT is an abbreviation for System CoNTrol. This Board controls the entire facsimile machine. One of its functions is the control of a printer interface and the synchronization of the vertical sync signal to the printer section with the horizontal sync signal from the printer section to transmit an image signal to the printer section.

Mancebo Hammond, Laura

Verifying the ESDA

Abstract: Three different devices for producing consistent control indentations for testing an electronic detection device (EDD) were evaluated: two commercially available devices (ESDAtesta and the Gradient) and one device constructed in-house. Evaluations were conducted by following the manufacture’s instructions for preparation of the control indentations. The evaluations indicated that all three are capable of producing the desired results, with the main differences being ease of use, cost, and operator dependent consistency.

Manzolillo, Patricia

SWGIT Documents Guidelines and Updates

Abstract: This poster will provide an overview of the current SWGIT guidelines and initiatives and their impact on Forensic Document Examiners. SWGIT currently has twelve guidelines published and three draft documents out for comment on the International Association for Identification (IAI) website. The poster will highlight the guidelines that have the most impact forensic document examination specifically Sections 3, 5, 6 and 11. A significant portion of the poster will be devoted to the discussion of the recommended changes in the archiving of digital images and media (Draft Section 15). These recommended changes will impact every forensic laboratory and examiner. The work done in conjunction with the Scientific Working Group on Digital Evidence (SWGDE) will be discussed as well the possible transition of the SWGIT guidelines into ASTM standards.

Section 1: Overview of SWGIT and the Use of Imaging Technology in the Criminal Justice System (Updated 1-9-2006)
Section 2: Considerations for Managers Migrating to Digital Imaging Technology (Updated 1-9-2006)
Section 3: Guidelines for Field Applications of Imaging Technologies in the Criminal Justice System
Section 4: Recommendations and Guidelines for Using Closed-Circuit Television Security Systems in Commercial Institutions
Section 5: Recommendations and Guidelines for the Use of Digital Image Processing in the Criminal Justice System (Updated 1-9-2006)
Section 6: Guidelines and Recommendations for Training in Imaging Technologies in the Criminal Justice System
Section 7: Recommendations and Guidelines for the Use of Forensic Video Processing in the Criminal Justice System
Section 8: General Guidelines for Capturing Latent Impressions Using a Digital Camera
Section 9: General Guidelines for Photographing Tire Impressions
Section 10: General Guidelines for Photographing Footwear Impressions
Section 11: Best Practices for Documenting Image Enhancement
Section 12: Best Practices for Practitioners of Forensic Image Analysis Drafts
Section 13: Best Practices for Maintaining the Integrity of Digital Images and Digital Video
Section 14: Best Practices for Image Authentication
Section 15: Best Practices for Archiving Digital and Multimedia Evidence (DME) in the Criminal Justice System

McNally, Greg
Expert Testimony: Identifying the Author of Simulated Signatures
Abstract: Many times when questioned signatures are deemed to be non-authentic, they are simulations of genuine signatures. Occasionally, there is some evidence to identify the writer, but not enough for a definite conclusion. Recently, I was able to opine that contested signatures were simulations of genuine signatures and also definitely identify their writer. Expert testimony was given in two parts. The first part was the elimination of the person whose signature had been imitated, utilizing a chart. Next, another chart was introduced to identify the author of the simulations.

Minehart-Herkt, Jacque
Document Encapsulation Using the ESDA
Abstract: Evidential documents may present as damaged and fragile. In addition, excessive handling may further deteriorate the document(s), potentially destroying pertinent information and preventing further analysis. Document encapsulation is a simple process which readily preserves and reduces damage/contamination that can occur as a result of handling. In addition, fragile or damaged documents can be preserved and restored for decipherment and examination without the use of invasive materials (such as adhesives and tape). By utilizing the Electro Static Detection Apparatus (ESDA), a static charge can be applied to the encapsulation substrate (clear polyester or acrylic sheeting). This charge replaces adhesives in holding the document, or document fragments, in place on the sheeting. By completing the encapsulation process, the document is maintained in position and can be examined and viewed from both the obverse and reverse sides. Furthermore, encapsulation is reversible, allowing for further examination (fingerprints, etc) of the document(s). This poster presentation will reveal a method of encapsulation, using the ESDA as an additional tool for the restoration and preservation of evidential documents.
Ridolfi, Douglas

Development of an Instructional Program to Prepare Forensic Science Students for Defense of Forensic Evidence Preparation for Mock Court and Daubert Challenge Exercises

Abstract: This paper will examine the possibility of developing a general strategic approach to countering defense arguments related to the introduction of evidence in a variety of forensic disciplines. There are legal manuals such as those by Bailey and Rothblatt that deal with strategies for attacking witness testimony and evidence. Can an effective method be developed for countering legal arguments and defenses and can it be done on an interactive base? Can it be used to generate questions to prepare one for court or students for mock court testimony in novel areas of scientific evidence? Combined with this, can a model be developed for teaching students the basis of Daubert requirements, proper scientific method and putting this information together in a coherent package that can aid attorneys in the introduction of novel evidence? Can data reduction methods be utilized to summarize key aspects of a complex case?

Borrowing from military strategy developed by Air Force Colonel John Boyd and scientific rational proposed by Karl Popper, I believe a template can be developed for general application to most areas of forensic evidence. Classroom exercises will be developed for training in expert witness testimony and drafting of legal arguments.

I. General overview of decision making theories- Observe, Orient, Decide, Act
II. The principles of scientific method design
III. Models of evidence evaluation within the forensic community - ACE-E, etc.
IV. Legal requirements of Daubert and its impact on scientific evidence - legal v. scientific environment
V. Data collection, reduction, analysis
VI. Strategies of expert witness testimony
VII. Development of instructional exercises in mock court and legal argument
VIII. Examples from questioned documents, DNA, latent prints, etc.

Rile, Howard

What Caused the Stain and Why?

Abstract: A three-page document was submitted for examination. The initial request was for a signature comparison. Ultraviolet examination revealed anomalies in the optical brighteners, most noticeably on page 1. Walter Rantanen at Integrated Paper Services, Inc. was contacted and requested to evaluate the paper used for the three-page document. He was requested to determine, if possible, what had caused the anomaly observed on the optical brightener, and to determine if the three sheets of paper were from the same source. The original of the document in question will be available at the meeting. The results of the examination will also be presented.

Seaman Kelly, Jan

The Importance of Being Earnest

Abstract: Poster presentation inspired by a printing process case involving a homicide victim's social security card found floating in the suspect's toilet. Determination of authenticity was requested. Poster presentation discusses the importance of using contemporary specimens in a printing process examination, understanding the recent history of the document, and seeking the expertise of those whose specialty is in the examination of printing processes.
Shiver, Farrell

Paper Basis Weight and Secondary Impressions

Abstract: A published article suggests that in order to create secondary impressions the primary impressions must be on a heavier weight of paper than the document receiving the secondary impressions. This presentation describes an experiment conducted to test whether primary impressions on a lighter weight of paper could create secondary impressions on paper with a heavier basis weight.

Tytell, Peter

In-House Production of a Device for Producing Consistent Control Indentations for EDDs

Abstract: In theory a forensic document examiner (FDE) will successfully develop a control indentation every time an electronic detection device (EDD) is used in an attempt to visualize indentations. In practice these control indentations are often produced by writing on a multi-sheet stack of paper, a method with numerous uncontrolled variables with potentially inconsistent results. Commercially available alternatives are available, but are not widely used by FDEs. This poster will present an approach to the in-house construction of a device for producing consistent control indentations.

Ware, Charlotte

Chemical Toners - In Theory and Practice

Abstract: Printer manufacturers are continually challenged to produce a more detailed and attractive printed product. As a result, mechanically produced toner particles are being replaced by chemically produced toners. This poster presentation will demonstrate the differences between mechanical and chemical toners, including manufacturing differences, size and shape specifications, and microscopic details.

Mechanically produced and chemically produced toners from different printers and manufacturers were examined, and the results of the comparisons will be presented. The implications for distinguishing the difference between the toner particles, between mechanical and chemical, and also between manufacturers will be presented.

In theory, discernment between types of toners and even manufacturers should be possible. In practice in most of today’s Forensic Document Laboratories, it is not yet a reality.
Carney, Brian  
Photoshop: A Useful Tool for Detecting Alterations  
Abstract: In 2003, I wrote a paper entitled, “Using Adobe Photoshop® To Detect Document Alterations. Since the time I wrote the paper I have had several document cases wherein the technique described was used to aid in the determination that entries were in fact added to the document in question. Some examiners told me the paper was too difficult to understand, while others thought it good and in fact, replicated through the instruction in the paper the technique I used to aid in detecting insertion or later insertions on a document. It should be noted once again, that forensic document examiners often are asked to examine copies of a questioned document because the original is “lost.” I have used the Photoshop Grid Technique on original documents and on photocopied documents.

This paper is not written for the novice Photoshop user. Providing you have a moderate working knowledge of Adobe Photoshop versions 7.0 and later you can use the grid detection technique without much difficulty. For basic descriptions on how to use a grid, see papers written by Nelson, L. K., “Explorations in Digital Imaging,” and Hicks, A. F., “Electronic Typewriter Grids.” These and other references are displayed in the reference section of this paper.

Cheng, Patrick Yau-Sang  
Physical Fit, How Much?  
Abstract: From time to time a document examiner might be requested to offer an opinion on whether or not a sheet of paper has been torn from a notebook or being part of a larger sheet. The method of determination relies on the physical fit between the 2 portions of the paper. Experience shows that the number of distinct areas of good physical fit varies from one case to another. The author of this paper has made a study to determine the number of these obvious and significant areas of physical fit along the length for 2 parts of a torn folio, for a sheet torn from a notebook and for a piece torn from a sheet of paper. Whether or not the number of these obvious and significant areas of physical fit is dependent on the length of the sheet concerned and the force of tearing has also been investigated.

Yaniv, Yaacov, Jay Levinson  
An Examination of Arabic Signatures from the Palestine Mandate Period  
Abstract: Arabic signatures on a 70-year-old document dealing with land ownership were submitted for examination. It was necessary to determine if the two signatures on the document were written by the same person and if the authenticating signature of the Land Registrar (signed in 1938) was also genuine.