

# Journal of the American Society of Questioned Document Examiners

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## ABSTRACTS

1. Foreword  
Janis M. Winchester, Editor

This inaugural edition of the *Journal of the American Society of Questioned Document Examiners* represents a new step in the field of Forensic Science. We are pleased to provide a peer reviewed compilation of papers presented at forensic science meetings, original research and technical notes concerning the field of Forensic Document Examination. Many individuals have contributed to the accomplishments of this first edition. Pulling together a new Journal requires a considerable amount of coordination. We appreciate the authors whose works are represented in this issue, and look forward to presenting the other scientific papers that are still in progress in future editions.

2. Editorial: A Brief History of the American Society of Questioned Document Examiners  
James V. P. Conroy

The American Society of Questioned Document Examiners (ASQDE), formally established on September 2, 1942, is the oldest and most prestigious organization of questioned document examiners in the United States. The first president and primary organizer of the ASQDE was Albert S. Osborn. Mr. Osborn is considered by many to be the father of the scientific examination of questioned documents in the United States. His *Questioned Documents*, first edition 1910, and *The Problem of Proof*, first edition 1922, were widely acclaimed by the legal profession, and public and private agencies concerned with promoting justice in matters involving questions about documents.

3. The Uniqueness of Handwriting  
Thomas Vastrick

Forensic document examiners have recently witnessed three events that have raised questions, either directly or indirectly, about the basis for handwriting identification, specifically in the areas of the statistical and scientific basis for the uniqueness of handwriting. These events consist of the publication of an article titled *Exorcism of Ignorance as a Proxy for Rational Knowledge: The Lessons of Handwriting Identification Expertise*, by D. Michael Risinger, Mark P. Denbeaux and Michael Saks (137 U.Pa. L.Rev. 731, 1989), the recent Supreme Court decision of *Daubert v. Merrell Dow Pharmaceuticals, Inc.* 113S. Ct. 2786 (1993) (along with the subsequent affect on federal and state rules of evidence), and the results of the "Daubert" hearing preceding the hearing of *United States of America v. Robert and Eileen Starzecpyzel* 93 Cr. 553.

4. The Identification of Colour Photocopiers: A Case Study  
C. K. Li and S. C. Leung

This paper reports the discovery of dotted patterns on photocopies of Hong Kong \$500 banknotes seized in a clandestine workshop and the utilization of the matrix of dots for the identification the Rank Xerox colour photocopying machine used for counterfeiting the banknotes. A survey on various models of colour photocopies of the Canon and Ricoh brands resulted in the observation of dotted motifs on photocopies from the high-ended models of the Canon copiers. These dotted motifs are probably also identification marks.

5. Discrimination of Ballpoint Pen Inks by High Performance Capillary Electrophoresis and High Performance Liquid Chromatography  
T. D. Whiting

Previous research demonstrates that Capillary Zone Electrophoresis has been successful in discriminating between various writing inks, including those found in felt tip and fountain pens. This preliminary study demonstrates ballpoint pen inks being discriminated using High Performance Capillary Electrophoresis (HPCE). Ballpoint pen inks were also tested using High Performance Liquid Chromatography (HPLC) and the results compared with those obtained from HPCE. Methodologies for sample preparation of four black ballpoint pen inks were developed to test a Beckman P/ACE System 5000 for HPCE and a Waters 712 WISP millipore injector system for HPLC. The initial data from HPCE and HPLC consistently differentiated between the four black ballpoint pen ink samples. The advantages of HPCE over HPLC include lower operating costs and the use of buffers rather than solvents. Further research in HPCE and ballpoint pen inks should provide an effective document examination tool for the discrimination of ballpoint inks.

6. The Effect of Sunlight and Fluorescent Tube Light on Inks and Papers  
Marta E. Vos, Steven J. Strach, and Paul D. Westwood

Following a case involving claimed sunlight effects on paper and ink, and a document examination conclusion suggesting chemical erasure, paper, and ink from various sources were subjected over various periods of time to radiation from sunlight through a window and to radiation from a room fluorescent tube light. All of the papers tested showed a darkening, and most showed a reduction of UV stimulated blue luminescence (fluorescence) and blue light stimulated red luminescence following exposure to sunlight. All of the inks showed changes in apparent optical absorption of light following exposure to sunlight, with some showing dramatic changes in colour, infrared absorption, and luminescence properties. None of the papers or inks tested showed any detectable change upon exposure to the fluorescent tube light. Document examiners should be aware of environmental effects such as sunlight causing changes in the optical properties of paper and inks which potentially might be misinterpreted as a difference in type of paper or ink, or wrongly ascribed to the effects of chemical erasure.

7. Pen Pressure as an Identifying Characteristic of Signatures: Verification from the Computer  
Peter V. Tytell

In the spring of 1975 the author noted a product announcement from Sentracon systems in a trade publication:

**Security System Identifies Signatures by Pressure**

Access control through new SIGNAC system is dependent on a measure of pressure patterns in individual signatures. System consists of a pen, pen signal processor, controller/enrollment console, and a central processing unit. New signatures are entered into the central memory and paired with a code number. From then on, access to computer records, security areas, and other system-supervised materials is requested by punching in the digital code at any terminal/processor and signing any piece of paper with the connected pen. Forgeries cannot duplicate the hand pressure of the signatory, even with a perfect duplication of the written name. ["Security System," 1975]

8. A Study of the Evolution of Handwriting from Grades Three to Six  
Sandra L. Ramsey

There are several complex factors that contribute to the uniqueness of one's writing. A research project was conducted to evaluate the validity of three long accepted premises of handwriting identification. Specimens of handwriting were obtained from one third grade class of students in the 1993-1994 school year, followed by additional handwriting specimens from these same students in grades four, five, and six. These writings were examined with regard to frequency of specific features, styles of writing, variation, and individuality. The findings support the premises of handwriting identification: (1) no one can write above their skill level; (2) no writer can write the same text exactly the same way twice; and (3) no two writers write exactly alike.

9. Sequencing Writing Impressions and Laser Printing or Inkjet Printing Using the ESDA  
Linton A. Mohammed

This study investigated the possibility of determining the sequence of writing impressions and inkjet or laser printing using the Electrostatic Detection Apparatus (ESDA). It was found that the sequence of impressions and inkjet printing could be determined with a high degree of confidence. The sequence of impressions and laser printing could not be determined in the study.

10. Problems with the Differentiation of Rubber Stamp Ink Signature Impressions and Written Signatures  
Paul D. Westwood and Robert W. Radley

In most cases, the forensic document examiner has little difficulty in recognizing a signature impression created by use of an inked rubber (or plastic) embossed stamping device and distinguishing it from a signature written with a liquid ink pen. When such signatures appear on paper bearing a fine complex printed background (such as security printing) the distinguishing features can be less clear cut and in some cases ambiguous. This paper lists the features which may serve to distinguish "rubber" stamp signature impressions from written signatures and discusses how complications such as a printed background can affect the distinguishing features.

11. Edge Characteristics of Commercially Produced Paper Stock  
William J. Bodziak

The commercial production of paper items still involves the use of large guillotine blades to cut through thick stacks of paper stock, tablets, notebook filler paper, steno pads, and similar paper products. During the sharpening process and subsequent use, the blades acquire grind marks and nicks, and as a result, take on their own uniqueness. Depending on the thickness, type of paper stock, and frequency of use, these blades must be sharpened relatively frequently. When the blades are removed and sharpened, their unique features are removed. New grinding marks from sharpening and, upon use, a new set of unique random nicks now distinguish that blade from its prior characteristics as well as from other blades. A study of two paper cutting machines and processes at a large paper company was made to determine if more than one pad can result in identical edge features on each of the four sides. The process each machine uses to cut paper stock, the edge characteristics which result from the guillotine blade, and the likelihood of duplicate features are discussed. In addition, a method of photographing the microscopic features which remain on the edges of cut paper stock is discussed and illustrated. This information should assist the document examiner during comparisons of individual pieces of paper for the purpose of confirming common origin.

12. Review of "Handwriting Identification Evidence in the Post-Daubert World"

F. L. Lee, Jr.

Moenssens, A. "Handwriting Identification Evidence in the Post-Daubert World," Vol. 66:2 UMKC L. REV. 251 (1997). Moenssens, has over 30 years experience as a professor of law, is a trial lawyer, a Fellow of the American Academy of Forensic Sciences and is an internationally recognized consultant on forensic science issues. This experience has uniquely equipped him to conduct this discussion on the standards needed for "scientific knowledge," the reliability of the science of questioned document examination, and the admission of handwriting expert testimony by the courts post-Daubert.