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[**Using a Forensic Light Source to Visualize Permanent Marker Ink After the Ink Has Been Removed**](http://theiai.org/member/jfi/JFI-2012-2-105.pdf)

**Author(s):** Pelletier, J.
**Type:** Case Report
**Published: 2012**, Volume 62, Issue 2, Pages 105-108
**Abstract:** A forensic light source (FLS) was used to visually detect permanent marker ink that had been removed.

[**Fingerprint Powders: Aerosolized Application Revisited**](http://theiai.org/member/jfi/JFI-2012-2-109.pdf)

**Author(s):** Swofford, H.; Kovalchick, A.
**Type:** Technical Note
**Published: 2012**, Volume 62, Issue 2, Pages 109-128
**Abstract:** Investigators are frequently faced with the task of processing crime scenes where the evidence cannot be readily shipped to the laboratory for analysis. In such cases, the investigator typically relies on fingerprint powders to develop latent print impressions. Conventional methods of fingerprint powder application can increase the possibility of damaging or destroying latent print impressions primarily by the application of too much powder. An alternative method of applying fingerprint powder to the surface using an aerosol spray has been introduced in the past, but yielded unsatisfactory results. Modifications in formulation and aerosol technology have rendered this technique a viable alternative, making it a less challenging and a more convenient method of applying fingerprint powder. Aerosol spray helps to control the amount of powder released while maintaining an even distribution onto the surface and decreases the amount of brush contact with the substrate surface needed to fully develop the impression thereby lessening the chance of damaging the impression. Furthermore, this method exhibits no adverse effects on deoxyribonucleic acid (DNA).

[**Development of Fingerprints using Electrolysis: A Technical Report into the Development of Fingerprints on Fired Brass Cartridge Cases**](http://theiai.org/member/jfi/JFI-2012-2-129.pdf)

**Author(s):** Nizam, F.; Knaap, W.; Stewart, J.
**Type:** Technical Note
**Published: 2012**, Volume 62, Issue 2, Pages 129-142
**Abstract:** This paper examines whether electrolysis could be a useful method in the development of latent fingerprints on fired brass cartridge cases. The influence of electrolysis on galvanic metal corrosion was explored. We found that the clarity of the fingerprints was time sensitive and improved as acid concentration increased with lower duration of electrolysis.

[**Bromophenol Blue as a Chemical Enhancement Technique for Latent Shoeprints**](http://theiai.org/member/jfi/JFI-2012-2-143.pdf)

**Author(s):** McNeil, K.; Knaap, W.
**Type:** Technical Note
**Published: 2012**, Volume 62, Issue 2, Pages 143-153
**Abstract:** The enhancement of two-dimensional shoe impressions, where the matrix is soil, may best be approached using chemistry. Potassium thiocyanate, which reacts with iron particles in soil, is a generally accepted development medium used by forensic investigators. Bromophenol blue, a pH indicator that reacts with carbonates in soil, is used, but with less frequency, particularly in North America. This study compared both chemistries and their ability to enhance two-dimensional shoe impressions deposited from a variety of soil samples on varying substrates. Bromophenol blue, although determined to be an inappropriate enhancement technique for brown paper samples, provided significantly more detailed enhancement than potassium thiocyanate with other tested substrates, including plastic and linoleum.

[**The Development of a Wireless Electrostatic Mark Lifting Method and its use at Crime Scenes**](http://theiai.org/member/jfi/JFI-2012-2-154.pdf)

**Author(s):** Milne, R.
**Type:** Technical Note
**Published: 2012**, Volume 62, Issue 2, Pages 154-164
**Abstract:** This paper outlines the basic principles and practices involved in the technique of electrostatic dust mark lifting (ESL). Details are included about the development of a three-electrode wireless method used in some currently available commercial devices.

[**Video Frame Comparisons in Digital Video Authenticity Analyses**](http://theiai.org/member/jfi/JFI-2012-2-165.pdf)

**Author(s):** Koenig, B.; Lacey, D.; Richards, G.
**Type:** Article
**Published: 2012**, Volume 62, Issue 2, Pages 165-182
**Abstract:** The scientific authentication of digital video-audio recordings involves the examination of both the visual and acoustic information through a number of analysis steps. One step in this protocol is determining whether any of the individual images are identical to any other images within the same digital recording. Additionally, in some examinations, it is necessary to identify nonmatching pixels from nearly identical images. These duplicate, or nearly duplicate images, could be indicative of editing, an irregularity of a specific recording device, or just identically captured and processed images. In this paper, three questions involving video frame comparisons are addressed:

1. Does a specific, commonly available, consumer-quality camcorder produce any identical images with a static visual view in standard and high definition modes?
2. Are there accurate methodologies for determining whether two recorded digital images are identical?
3. What digital analysis procedures are available for comparing two nearly identical images?

These questions are answered with the analysis of more than 147,100 frames from a consumer camcorder using digital data analyses and Photoshop routines.

[**Finger Print The Universal Religion of God**](http://theiai.org/member/jfi/JFI-2012-2-183.pdf)

**Author(s):** Hutchens, L
**Type:** Book Review
**Published: 2012**, Volume 62, Issue 2, Page 183

[**Back to Basics**](http://theiai.org/member/jfi/JFI-2012-2-188.pdf)

**Author(s):** Siegel, S. D.
**Type:** Back to Basics
**Published: 2012**, Volume 62, Issue 2, Page 188
**Abstract:** The first print is an accidental whorl. It has two deltas, but doesn’t conform to the rules for the other types of whorls. It would be referenced to a loop.

The second print could be classified as an accidental whorl if it is thought it does not conform to the rules of the other patterns. But, it has the three essentials of a loop: a delta; ridge count across a looping ridge; and the ridges enter on one side, re-curve, and exit the same side of the print. Is it considered an accidental whorl because the ridges enter from the top rather than lower on the side of the print? There is nothing in the *Science of Fingerprints* that says where they have to enter, only that they must exit the same side.

You be the judge: loop or whorl first??? The only time you would be wrong is if you did not reference it.

[**Fingerprint Visualization and Spectroscopic Properties of 1,2-Indanedione-alanine Followed by Zinc Chloride or Europium Chloride**](http://theiai.org/member/jfi/JFI-2012-1-1.pdf)

**Author(s):** Alaoui, I. M.; Troxler, T.; Joullié
**Type:** Technical Note
**Published: 2012**, Volume 62, Issue 1, Pages 1-13
**Abstract:** We investigated the reaction product of 1,2-indanedione with alanine in methanol at room temperature using absorption, excitation, and emission spectroscopy. We observed that the pale pink color of 1,2-indanedione-developed fingerprints on papers is also present in the 1,2-indanedione-alanine methanol solution at an appropriate concentration. The addition of zinc and europium salts to the solution and to 1,2-indanedione-treated fingerprints was presented and discussed. We confirmed the laser-induced fluorescence enhancement when adding zinc to the 1,2-indanedione-alanine solution and also on 1,2-indanedione-treated fingerprints after post-treatment with zinc. However, no emission enhancement was observed with the addition of europium, even though we observed the formation of a 1,2-indanedione-alanine-Eu complex.

[**Back to Basics**](http://theiai.org/member/jfi/JFI-2012-1-104.pdf)

**Author(s):** Siegel, S. D.
**Type:** Back to Basics
**Published: 2012**, Volume 62, Issue 1, Page 104
**Abstract:** The classification for this print is a tented arch. The right re-curve has an appendage at the line of flow. Even if the appendage is a dot and not showing direction, the delta would be located on the only re-curve ridge. This print would not need any references.

[**Comparison of Latent Print Detection using Semiconductor Laser and LED Light Sources with Three Chemical Reagents**](http://theiai.org/member/jfi/JFI-2012-1-14.pdf)

**Author(s):** Dalrymple, B.; Almog, J.
**Type:** Technical Note
**Published: 2012**, Volume 62, Issue 1, Pages 14-27
**Abstract:** A variety of light sources and reagents are available for the detection and identification of latent prints. This study was undertaken to explore the optimum light and filter combinations of laser and light-emitting diode (LED) light for use with indanedione and two new reagents, genipin and lawsone. The light sources utilized were Coherent TracER lasers operating at 460 nm, 532 nm, and 577 nm and the Rofin Polilight Flare Plus LED operating at 505 nm.

Deliberate and randomly created latent prints were first examined utilizing the light sources alone and then again following treatment with the chemical reagents. Results indicated that treatment with indanedione–zinc chloride was the most effective at the excitation of latent prints. With the exception of the 577 nm laser and genipin, the two new reagents, genipin and lawsone, did not provide useful results under test conditions. Although the LED light source revealed a significant number of untreated impressions, the laser light source proved to be more sensitive at detecting untreated impressions, and the ridge clarity was frequently higher on the samples examined. Monochromatic sources (lasers) and broadband sources such as LEDs each exhibited the potential to detect evidence missed by the other.

[**Applying Anti-Stokes Phosphors in Development of Fingerprints on Surfaces Characterized by Strong Luminescence**](http://theiai.org/member/jfi/JFI-2012-1-28.pdf)

**Author(s):** Drabarek, B.; Siejca, A.; Moszczynski, J.; Konior, B.
**Type:** Technical Note
**Published: 2012**, Volume 62, Issue 1, Pages 28-35
**Abstract:** Using traditional luminescence methods to develop latent prints becomes problematic when dealing with backgrounds that demonstrate strong luminescence. In such instances, the application of time-resolved luminescence is considered a good solution. However, this technique requires the use of complicated devices that allow short-lived background fluorescence to be chopped off from a longer-lived fingerprint luminescence. This paper discusses a new and straightforward technique for the development of latent prints that involves using pigments with upconversion properties (anti-Stokes phosphors). The method requires an illumination source that emits infrared radiation.

[**Identification of Identical and Nearly Identical Frames from a Lawmate PV-500 Digital Video-Audio Recorder**](http://theiai.org/member/jfi/JFI-2012-1-36.pdf)

**Author(s):** Lacey, D.; Koenig, B.
**Type:** Case Report
**Published: 2012**, Volume 62, Issue 1, Pages 36-46
**Abstract:** This case report sets forth the preliminary examinations plus the procedures and results of a specialized data analysis to identify identical and nearly identical video frames produced in recordings from a miniature Lawmate PV-500 digital video-audio recorder. A review of five investigative recordings and test recordings from two recorders, using the native DivX MPEG-4 encoding at the recorded rate of 24 frames per second, revealed a video stream containing identical and nearly identical frames that could be identified solely by their chunk sizes within the resulting AVI files. Based upon this research, data analysis procedures can be used with Lawmate PV-500 recordings and similarly configured formats to identify consecutive identical and nearly identical frames during forensic authenticity examinations of video-audio recordings.

[**Survivability of Latent Fingerprints Part I: Adhesion of Latent Fingerprints to Smooth Surfaces**](http://theiai.org/member/jfi/JFI-2012-1-47.pdf)

**Author(s):** Cohen, Y.; Rozen, E.; Azoury, M.; Attias, D.; Gavrielli, B.; Elad, M.
**Type:** Case Report
**Published: 2012**, Volume 62, Issue 1, Pages 47-53
**Abstract:** A latent print was developed on an aluminum window frame more than two years after it had been deposited. The ability to develop a fingerprint after such a long time is probably due to a “fixation” phenomenon to the metal frame. To understand this unusual case, we simulated the event in the laboratory.

[**Survivability of Latent Fingerprints Part II: The Effect of Cleaning Agents on the Survivability of Latent Fingerprints**](http://theiai.org/member/jfi/JFI-2012-1-54.pdf)

**Author(s):** Cohen, Y.; Azoury, M.; Elad, M.
**Type:** Technical Note
**Published: 2012**, Volume 62, Issue 1, Pages 54-61
**Abstract:** The present work reports the results of experiments carried out to evaluate the effectiveness of some common commercial cleaning products on the survivability of latent fingerprints on smooth surfaces. This work disputes the assumption that latent fingerprints do not survive cleaning agents.

[**Individualization Using Friction Skin Impressions: Scientifically Reliable, Legally Valid**](http://theiai.org/member/jfi/JFI-2012-1-62.pdf)

**Author(s):** Swofford, H. J.
**Type:** Article
**Published: 2012**, Volume 62, Issue 1, Pages 62-79
**Abstract:** The adversarial structure of the American judicial system encourages critical reviews and challenges of forensic evidence. As a result, the discriminatory power of friction ridge skin impression evidence has been a prime target of debate among critics of the latent print discipline for years, the primary argument being friction ridge skin examination is neither scientifically reliable nor legally valid. Therefore, these critics advocate the exclusion of expert testimony to identifications from the legal system. This article reviews some long-held challenges to the science of friction ridge examination, which include challenges to the premise of friction ridge skin uniqueness, testimonial claims of individualization, reliability of comparative interpretations, errors and error rate data, and the legal admissibility according to Daubert standards. The flawed logic on which these challenges are based is presented along with evidence in response to the challenges regarding the scientific reliability and legal validity of the science of the examination of friction ridge skin examination.

[**Is There a Need for 100% Verification (Review) of Latent Print Examination Conclusions?**](http://theiai.org/member/jfi/JFI-2012-1-80.pdf)

**Author(s):** Black, J. P.
**Type:** Article
**Published: 2012**, Volume 62, Issue 1, Pages 80-100
**Abstract:** This research attempts to provide insight on the extent of verification as currently practiced within the latent fingerprint community. Ten questions were posed to this community regarding various aspects of verification; 56 agencies responded. The study results indicate that nearly every agency is performing verifications on 100% of reported fingerprint identifications. The study results also indicate that exclusion, inconclusive, and “no value” decisions are not being verified to the same extent. Interestingly, erroneous identifications constitute the minority of technical fingerprint errors, whereas erroneous exclusions, missed identifications, and inappropriate “inconclusive” and “no value” decisions are far more numerous.