**Journal of Forensic Identification**

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[Re: A Case of Striking Sibling Similarity and a Scene Impression J. For. Ident. 2017, 67 (2), 176–179.](https://www.theiai.org/member/jfi/JFI-2017-3-305.pdf)

**Author(s):**
**Type:** Correction
**Published: 2017**, Volume 67, Issue 3, Page 305
**Abstract:** The table of contents for volume 67, issue 2, failed to list this case report by Heidi Eldridge. I point this out to the readers at this time so that the article is not overlooked. I apologize to the readers and especially to the author for my oversight.

[Re: XCAT (Capillary Analysis Test) Validation Study: Practical Field Use of Presumptive Gunshot Residue Test. J. For. Ident. 2016, 66 (4), 319–325.](https://www.theiai.org/member/jfi/JFI-2017-3-306.pdf)

**Author(s):**
**Type:** Letter to the /Editor
**Published: 2017**, Volume 67, Issue 3, Pages 306-311
**Abstract:** Upon review of the article, we found several technical inconsistencies as well as unfounded conclusions. ([Read the article here](https://www.theiai.org/member/jfi/JFI-2016-4-316.pdf))

[A Preliminary Evaluation of the Use of Gun Bluing to Enhance Friction Ridge Detail on Cartridge Casings](https://www.theiai.org/member/jfi/JFI-2017-3-313.pdf)

**Author(s):** Morrissey, J.; Larrosa, J.; Birkett, J.W.
**Type:** Technical Note
**Published: 2017**, Volume 67, Issue 3, Pages 313-322
**Abstract:** Friction ridge detail was enhanced on fired and unfired 9 mm brass Luger ammunition casings using three techniques, two involving gun blue reagent at a concentration of 50% v/v. Fingermarks were deposited on 90 ammunition casings, and half were discharged using a Glock 19 semiautomatic pistol. Mark development was achieved using either superglue fuming followed by basic yellow 40 fluorescent dye staining (SG -> BY40), superglue fuming followed by gun blue (SG -> GB), or gun blue (GB) as a single process. All three processes developed ridge detail on both fired and unfired casings. The results of this preliminary work show that the use of gun blue as a single enhancement technique was able to enhance ridge detail of the highest quality and clarity, particularly on fired casings, making it the most effective process.

[Lens Testing: Reassessing the 50 mm Rule](https://www.theiai.org/member/jfi/JFI-2017-3-323.pdf)

**Author(s):** Rimmasch, P.
**Type:** Technical Note
**Published: 2017**, Volume 67, Issue 3, Pages 323-340
**Abstract:** Generations of forensic science practitioners have been trained to use a 50 mm lens for crime scene and evidence photography because the 50 mm focal length is considered the “normal” lens for the once dominant 35 mm film format and thus historically offered the most distortion-free images. However, in this age of digital photography, this paradigm may not necessarily hold true because of the varying sizes of digital camera sensors. Using a focus test chart with a grid or dot pattern, photographers can systematically test their equipment to determine what the "normal" lens is for their particular camera and lens combination. This activity was deemed prudent by our study because the 50 mm lens did not always produce digital images that were free of distortion.

[Using Bluestar Forensic to Detect Latent Bloodstains under Coats of Paint](https://www.theiai.org/member/jfi/JFI-2017-3-341.pdf)

**Author(s):** Pettolina, M.; Rainey, J.; Sanchez, R.
**Type:** Technical Note
**Published: 2017**, Volume 67, Issue 3, Pages 341-353
**Abstract:** The purpose of this experiment was to determine whether Bluestar Forensic was capable of detecting latent bloodstains under multiple coats of paint. In order to test this, three different bloodstain patterns (handprint transfer, drip, and hair swipe) were applied to three types of substrates (brick, flakeboard, and dry wall). After each of the bloodstains had been applied to the substrates, the stains were systematically painted over multiple times with three separate colors and types of paint. After each coat of paint was applied and allowed to dry, Bluestar Forensic was then sprayed over the test areas to see whether a reaction occurred with the concealed bloodstain. Reactions were visualized, recorded, and photographed. The findings of this study show that Bluestar Forensic was able to detect bloodstains through at least three to four layers of paint in most circumstances. However, results did vary and were dependent upon the type and color of paint used as well as the bloodstain pattern applied.

[Can Dry Bloodstains Provide a Source for a Blood-Contaminated Fingermark?](https://www.theiai.org/member/jfi/JFI-2017-3-355.pdf)

**Author(s):** Geller, B.; Volinits, Y.; Wax, H.
**Type:** Case Report
**Published: 2017**, Volume 67, Issue 3, Pages 355-360
**Abstract:** This study approaches the matter of whether a dry bloodstain can provide a source for blood-contaminated fingermarks. This question was raised during a murder case, where the defense claimed that wet fingers may have transferred blood from a dry stain onto a clean surface. In order to examine this theory, experiments were conducted at different humidity levels caused by natural and induced sweating as well as by deliberate wetting of the hands. The results indicate that under certain conditions, this type of blood transfer may indeed be possible. However, such an action leaves a distinguishable trace: a "negative-type" fingermark on the original bloodstain remained each time. This conclusion may greatly assist the investigation in either confirming or rejecting the above hypothesis.

[A Pilot Study to Analyze the Uniqueness of Anterior Teeth Using a Novel Three-dimensional Approach](https://www.theiai.org/member/jfi/JFI-2017-3-361.pdf)

**Author(s):** Chong, G.T.F.; Forgie, A.H.
**Type:** Article
**Published: 2017**, Volume 67, Issue 3, Pages 361-378
**Abstract:** Anonymized upper and lower dental models of 20 patients who had completed orthrodontic treatment with good clinical results were scanned by hand using an intra-oral three-dimensional scanner. The three-dimensional scans were then cropped to include only the incisal 2 mm of the six anterior teeth. The edited images were subsequently imported into the three-dimensional analysis software, and a best fit alignment analysis of test and reference scans was undertaken using approximately 10,000 reference points. The distance between each reference point of both scans was measured, and 0.1 mm was the threshold criteria used to accept as matches.

A pictorial map produced by the software illustrated both quantitative and qualitative data from 420 comparisons undertaken. The software was able to identify matches amongst different software files of the same scan and different scans of the same models. There was a complete mismatch between the scans of pre- and post-treatment models. There were no perfect matches amongst the different post-treatment three-dimensional scans. However, there were close similarities between four upper and seven lower models using the 0.1 mm threshold. Using stringent criteria, we have shown that the human anterior dentition is unique within this study population.

[The Effect of Clothing on the Decomposition of Human Remains](https://www.theiai.org/member/jfi/JFI-2017-3-379.pdf)

**Author(s):** Capobianco, R.A.; Christensen, A.M.
**Type:** Article
**Published: 2017**, Volume 67, Issue 3, Pages 379-389
**Abstract:** The relation between clothing and the rate of human decomposition is still unclear despite previous research. Some suggest that clothing accelerates decomposition; others indicate that it may slow decomposition. The use of pig models in many of these studies may contribute to this discrepancy. Here we present the results of a pilot study that examined six clothed human cadavers at the University of Tennessee Anthropology Research Facility for a period of one year and compared observations with those documented for unclothed specimens at the same facility using a decomposition scoring approach along with accumulated degree days (ADD). More ADD were required for clothed specimens to reach later decomposition stages, though differences were not highly significant, suggesting that clothing may slow the rate of decomposition, at least in East Tennessee. The amount of clothing worn appears to have an effect.

[Fingerprint Development on Cartridge Cases Through the Electrodeposition of Gun Blue](https://www.theiai.org/member/jfi/JFI-2017-3-391.pdf)

**Author(s):** Dove, A.
**Type:** Article
**Published: 2017**, Volume 67, Issue 3, Pages 391-409
**Abstract:** This paper examines whether an electrically stimulated deposition of gun blue is a viable technique for developing fingerprints on cartridge cases. By running an electric current through a cartridge case while it is suspended in a diluted solution of gun blue, sebaceous fingerprints were quickly, efficiently, and inexpensively developed to a quality surpassing both the passive deposition of gun blue and the sequential development using cyanoacrylate --> brilliant yellow 40.

[Investigations into the Influence of Donor Traits on the Performance of Fingermark Development Reagents. Part 1: 1,2-Indanedione-Zinc Chloride](https://www.theiai.org/member/jfi/JFI-2017-3-410.pdf)

**Author(s):** Fritz, P.; Frick, A.A.; van Bronswijk, W.; Beaudoin, A.; Bleay, S.; Lennard, C.; Lewis, S.W.
**Type:** Article
**Published: 2017**, Volume 67, Issue 3, Pages 410-425
**Abstract:** This study outlines the use of 1,2-indanedione-zinc chloride (Ind-ZnCl2) to treat fingermarks with a view to observing possible trends that may be present in a donor population. Fingermark samples from 131 donors were treated and subsequently evaluated using the grading scale devised by the Home Office Police Scientific Development Branch (now the Centre for Applied Science and Technology; CAST), United Kingdom. Out of a total of 1310 grades assigned, only 6 (0.5%) returned a score of 0, and 64.6% of all grades assigned were a 3 or 4. These tests indicated that grades for fingermarks developed within 3 days vary significantly, depending on the age of the donor and the washing of hands prior to deposition. Donors who did not wash their hands the hour prior to deposition, or were below the age of 25, were more likely to offer higher grades. With fresh fingermarks, no significant variation in fingermark grades was observed that could be associated with food consumption, sex of the donor, or recent use of cosmetics. The results for the treated 1-month-old fingermarks agreed with the findings for fresh fingermarks, with the exception of washing of hands. In this case, no significant difference was found between graded samples where donors had and had not washed their hands prior to deposition.

[Investigations into the Influence of Donor Traits on Performance of Fingermark Development Reagents. Part 2: Oil Red O and PD](https://www.theiai.org/member/jfi/JFI-2017-3-427.pdf)

**Author(s):** Frick, A.A.; Fritz, P.; van Bronswijk, W.; Beaudoin, A.; Bleay, S.; Lennard, C.; Lewis, S.W.
**Type:** Article
**Published: 2017**, Volume 67, Issue 3, Pages 427-446
**Abstract:** Latent fingermark samples were collected on white copy paper from 148 donors to compare the relative performance of Oil Red O (ORO; propylene glycol formulation) and physical developer (PD; Tween 20 formulation) on both recently deposited samples and those stored for 30 days. PD, when applied following ORO treatment, was found to outperform ORO on both fresh and stored samples, with ORO performance significantly worsening on older samples. Statistical methods revealed that donor age, sex, and recent use of skin products had significant influence on physical developer performance on recently deposited samples. This variation appeared to decrease with increased sample age. Comparisons of the performances of 1,2-indanedione-zinc chloride (Ind-ZnCl2) and physical developer showed good complementarity. There was some correlation in that poor Ind-ZnCl2 performance coincided with poor PD development, suggesting that PD performance is negatively affected by low amounts of eccrine constituents. The lack of other strong correlations between the two reagents reinforce the importance of detection sequences rather than utilizing a single method for fingermark detection.

[Categorizing Innate Tying Behavior and Knot Sophistication Using Fundamental Principles](https://www.theiai.org/member/jfi/JFI-2017-3-447.pdf)

**Author(s):** Chisnall, R.C.
**Type:** Article
**Published: 2017**, Volume 67, Issue 3, Pages 447-472
**Abstract:** Tying behavior tends to be consistent, although there are factors that can interfere with the tying process and alter knot chirality. Previous research and case experience indicate that there is a weak correlation between tier handedness and simple knot chirality. These and other insights provide several principles of analysis that allow investigators to profile potential suspects according to their knot-tying habits, giving rise to systems of group-characteristic categorization. Innate tying behavior can be represented using a scale that ranges between the extremes of knot enantiomorph frequencies. As well, knot samples can be characterized according to increasing levels of tying sophistication.

[Back to Basics](https://www.theiai.org/member/jfi/JFI-2017-3-476.pdf)

**Author(s):** Siegel, S.
**Type:** Back to Basics
**Published: 2017**, Volume 67, Issue 3, Page 476
**Abstract:** This print appears to have two loops, but only one delta in the pattern area. The loop on the lower left portion on the print is most likely created by an injury. The resulting scar did disrupt the ridges intervening between the core and delta. A ridge count of 14 ridges is still possible. Referencing to other pattern types is not necessary. Thank you to Cpl. Nina Johnson, Victoria RCMP Forensic Identification Section, BC Canada.