

JFI Abstracts from 2006-2009

The Visual Characterization and Identification of Cannabis sativa (Marijuana) Seeds

Author(s): Fussell, J. L.; Thornton, J. I.; Whitehurst, F. W.

Type: Correction

Published: 2009, Volume 59, Issue 6, Page 597

Abstract: On page 585 in the September/October 2009 issue of the Journal of Forensic Identification (volume 59, issue 5), the wrong image was published as Figure 7. The editor regrets this error and appreciates that the error was brought to his attention. The correct image is shown below.

The Authority of Fingerprint Experts: Is it Based on Belief or Science?

Author(s): Bush, L.

Type: Commentary

Published: 2009, Volume 59, Issue 6, Pages 599-608

Quantification of the Individual Characteristics of the Human Dentition

Author(s): Johnson, L. T.; Radmer, T. W.; Wirtz, T. S.; Pajewski, N. M.; Cadle, D. E.; Brozek, J.; Blinka, D. D.

Type: Technical Note

Published: 2009, Volume 59, Issue 6, Pages 609-625

Abstract: The considerations for admissibility suggested by the Daubert trilogy challenge forensic experts to provide scientific support for opinion testimony. The defense bar has questioned the reliability of bitemark analysis. Under an award from the U. S. Department of Justice, via the Midwest Forensic Resource Center, a two-year feasibility study was undertaken to quantify six dental characteristics. Using two computer programs, the exemplars of 419 volunteers were digitally scanned, characteristics were measured, and frequency was calculated. The study demonstrates that there were outliers or rare dental characteristics in measurements. An analysis of the intra-observer and inter-observer consistency demonstrated a high degree of agreement. Expansion of the sample size through collaboration with other academic researchers will be necessary to be able to quantify the occurrence of these characteristics in the general population. The automated software application, Tom's Toolbox, developed specifically for this research project, could also provide a template for precisely quantifying other pattern evidence.

Evaluation and Comparison of Casting Materials on Detailed Three-dimensional Impressions

Author(s): Yu, A.; Knaap, W.; Milliken, N.; Bogнар, P

Type: Technical Note

Published: 2009, Volume 59, Issue 6, Pages 626-636

Abstract: Five casting products used for impression evidence were evaluated and compared to determine the best-performing casting material for making detailed three-dimensional impressions. The focus of the research was on the quality of the casting materials to replicate fine detail. Four of the materials (Mikrosil, AccuTrans, ReproRubber "Thin Pour", and ReproRubber "Medium Body") outperformed the dental stone.

Interagency Cooperation, Recovery, and Identification of Remains: The Interstate 5 Newhall Truck Bypass Crash

Author(s): Miller, E.; Machian, D.; Winter, E.

Type: Case Report

Published: 2009, Volume 59, Issue 6, Pages 637-653

Abstract: Multiple and mass fatalities are difficult scenes to process. In this case study, an example of interagency cooperation is presented that led to the recovery and quick identification of decedents involved in a multifatality traffic accident.

The Effectiveness of 1,2-Indandione–Zinc Formulations and Comparison with HFE-Based 1,8-diazafluoren-9-one for Fingerprint Development

Author(s): Sears, V. G.; Batham, R.; Bleay, S.

Type: Article

Published: 2009, Volume 59, Issue 6, Pages 654-678

Abstract: This study investigated the modification of a 1,2 indandione–zinc (Ind–Zn) formulation for developing fluorescent fingerprints and compared the modified formulation to 1, 8-diazafluoren-9-one (DFO). Laboratory trials indicated that DFO developed more high-quality fingerprints overall. However, there may be surfaces, for example, brown paper, where Ind–Zn could give better results, and these may merit further study.

Standard For Friction Ridge Comparison Proficiency Testing Program (Latent/Tenprint)

Author(s): SWGFAST

Type: Special Feature

Published: 2009, Volume 59, Issue 6, Pages 679-682

Standard For Friction Ridge Automation Training (Latent/Tenprint)

Author(s): SWGFAST

Type: Special Feature

Published: 2009, Volume 59, Issue 6, Pages 683-685

Glossary

Author(s): SWGFAST

Type: Special Feature

Published: 2009, Volume 59, Issue 6, Pages 686-694

Fingerprints: Analysis and Understanding

Author(s): Triplett, M.

Type: Book Review

Published: 2009, Volume 59, Issue 6, Pages 695-697

Back to Basics

Author(s): Siegel, S. D.

Type: Back to Basics

Published: 2009, Volume 59, Issue 6, Page 704

Abstract: The first questions you have to ask yourself would be, Is this print rolled beyond a normal width (extra wide)? Would the left delta always show up when printed? You need to answer these questions before you can determine the primary pattern type. If rolled to a normal width, then it would be a whorl referenced to a loop. If it was rolled beyond a normal width, then it would be a loop referenced to a whorl. Individual judgment is the only standard (FBI - The Science of Fingerprints p 78). Side note: This loop has the appearance of a nutant or lazy loop. Lazy loops are found in the thumbs (Cowger – Friction Ridge Skin p 153). This is a right thumb. Thank you to Gunilla Havebro, National Criminal Investigation Department, Stockholm, Sweden, for this submission.

Qualitative Assessment of Skin Deformation: A Pilot Study

Author(s): Maceo, A. V.

Type: Correction

Published: 2009, Volume 59, Issue 5, Pages 473-474

Abstract: Correction to an article published in JFI 59 (4)

Digital Camera Identification — A Brief Test of a Method Based on the Sensor Noise

Author(s): Höglund, T.

Type: Technical Note

Published: 2009, Volume 59, Issue 5, Pages 475-501

Abstract: Previously conducted research has been done to find methods to identify the camera that shot a specific image. This paper evaluates one of the methods based on the unique sensor noise in digital cameras. By extracting the noise pattern associated with a camera and then comparing it to a number of images from the same and other cameras, a statistical model is made. When comparing the noise pattern to the noise from a specific image, the model helps in determining whether that image was shot with the camera in question. The results are promising when the image consists of at least 0.7 megapixels and is not heavily compressed. Note that identification will fail if the image has been rotated, heavily manipulated, and so forth.

Calliphora vicina (Diptera: Calliphoridae) and Their Ability to Alter the Morphology and Presumptive Chemistry of Bloodstain Patterns

Author(s): Fujikawa, A.; Barksdale, L.; Carter, D. O.

Type: Technical Note

Published: 2009, Volume 59, Issue 5, Pages 502-512

Abstract: Experiments were conducted to investigate the effect of *Calliphora vicina* (Diptera: Calliphoridae) on the shape and presumptive chemistry of medium-impact and pooled bloodstain patterns. Experiments were conducted with six contrasting surfaces: painted wall, paneling, wallpaper, wood laminate, linoleum, and carpet. Four presumptive blood tests were used: phenolphthalein, leucocrystal violet, Hemastix, and fluorescein.

Feeding activity altered the shape of many stains, whereas other stains were completely eliminated. Regurgitation and defecation resulted in the deposition of multiple new artifacts on all surfaces. The chemical tests yielded no significant differences between blood and artifacts.

The Use of HemoSpat To Include Bloodstains Located on Nonorthogonal Surfaces in Area-of-Origin Calculations

Author(s): Maloney, K.; Killeen, J.; Maloney, A.

Type: Technical Note

Published: 2009, Volume 59, Issue 5, Pages 513-524

Abstract: Determining the origin of impact patterns at crime scenes can be a challenge when there is limited or less-than-ideal information. This is made even more difficult if the analyst cannot incorporate data from nonorthogonal and orthogonal surfaces in the same analysis. Using HemoSpat software for impact pattern analysis allows analysts to remove several limitations, maximize the use of this information, and produce precise and reliable results.

An Examination of Lip Glosses by Thin-Layer Chromatography

Author(s): Kaur, S.; Singh, J.; Garg, R. K.

Type: Technical Note

Published: 2009, Volume 59, Issue 5, Pages 525-536

Abstract: Twenty-nine samples of lip glosses were analyzed by thin-layer chromatography using twenty-eight different solvent systems with three visualizing aids (daylight, ultraviolet light, and iodine fuming). Toluene/benzene (3:7) and toluene/benzene/cyclohexane (3:5:2) were the most suitable solvent systems for the separation of components of all the samples of lip glosses examined. This confirms that the constituents in lip gloss that have been recovered in forensic investigations can be separated using thin-layer-chromatography investigations.

The Effects of Differential Cyanoacrylate Fuming Times on the Development of Fingerprints on Skin

Author(s): King, W. R.

Type: Technical Note

Published: 2009, Volume 59, Issue 5, Pages 537-544

Abstract: This study investigated the effect of variable cyanoacrylate fuming times (between 10 minutes and 125 minutes) on the successful development of fingerprints deposited on skin. Pig skin was used as a surrogate for human skin. The skin was fumed in a fuming booth, removed, and printed with a magnetic fingerprint powder applicator. Prints were examined and rated with a three-category ordinal scale. A statistical analysis of the 152 prints indicates no significant relationship ($<.05$) between fuming time and quality of the developed prints.

Evaluation of the Dimethylaminocinnemaldehyde Contact Transfer Process and its Application to Fingerprint Development on Thermal Papers

Author(s): Lee, J. L.; Bleay, S.; Sears, V. G.; Mehmet, S.; Croxton, R.

Type: Article

Published: 2009, Volume 59, Issue 5, Pages 545-568

Abstract: The use of dimethylaminocinnamaldehyde (DMAC) as a fingerprint development reagent was first proposed in the 1970s as a solution-dipping technique to target the urea constituent of fingerprints. However, in operational trials, the quality of developed fingerprints was poor. This was attributed to diffusion of urea with time, and the technique was not pursued. More recently, the use of DMAC fuming and the use of sheets impregnated with DMAC solution have been proposed as alternative fingerprint development processes for porous surfaces, in particular for thermal papers. This study reports an analysis of the DMAC development process using impregnated paper sheets and compares its effectiveness to other techniques proposed for thermal papers. The study concludes that the DMAC transfer process primarily targets amino acids in the fingerprint, but that these may be less persistent than the constituents targeted by ninhydrin and DFO; consequently, the effectiveness decreases more rapidly as the fingerprints age. Overall, the most effective process for thermal papers if it is not necessary to retain the text is an ethanol pre-dip followed by DFO.

The Visual Characterization and Identification of Cannabis sativa (Marijuana) Seeds

Author(s): Fussell, J. L.; Thornton, J. I.; Whitehurst, F. W.

Type: Article

Published: 2009, Volume 59, Issue 5, Pages 569-592

Abstract: A study was conducted to create a visual standard and basis for the comparison and identification of seeds of Cannabis sativa (marijuana) based on their appearance. Humulus (hop) seeds were examined, because Humulus is phylogenetically related to Cannabis sativa and is the only other genus in the Cannabinaceae family. Seeds of other plants whose leaf material had been previously shown to have some similarity to the leaf material of Cannabis sativa were examined, and additionally, a survey of approximately one thousand other seeds was conducted to ascertain whether other seeds exist that could reasonably be confused with Cannabis sativa. This work is intended to give forensic workers more complete information relative to the visual identification of marijuana seeds. (See correction in JFI 59 (6).)

Back to Basics

Author(s): Siegel, S. D.

Type: Back to Basics

Published: 2009, Volume 59, Issue 5, Page 596

Abstract: This loop is interesting because patterns are not common in the medial phalanx. This one may be due to the extra thumb present at birth. It was later removed; notice the scar to the left of the loop. For classification purposes, this is a plain arch and does not need a reference, because the loop is not located in the pattern area. However, this print could present a problem for a latent print examiner. If not fully recorded, it could cause an erroneous exclusion. The loop did not appear during normal recording procedures. Figure 1 is a photograph. Figure 2 is the rolled impression. Figure 3 is the recording of the palm. The plain impression was not provided. Thank you to Mona White-Ortega with the Pima Co Sheriff's Office, Tucson, Arizona, for this submission.

X-Ray Enhancement of Knifepoint Profiles

Author(s): Bailey, J. A.; Blue, K. T.

Type: Technical Note

Published: 2009, Volume 59, Issue 4, Pages 363-371

Abstract: When a knifepoint forms a cavity in a substrate, Microsil or other casting materials can be used to cast an impression of the knifepoint. However, in some cases, the cast is damaged or destroyed when it is removed from the substrate. One method to ensure that the knifepoint profile is documented is by x-ray enhancement

prior to removing the cast. By using class characteristics of a knifepoint profile, investigators can eliminate other knives with different point profiles in an investigation. In this experiment, 10 casting mixtures were tested to determine which would yield enhanced roentgenogram knifepoint profiles using the Aribex Nomad x-ray unit with a digital sensor.

Digital Enhancement of Latent Prints using Adobe Photoshop Black & White Adjustments

Author(s): Osborn, S.; Wilson, K.

Type: Technical Note

Published: 2009, Volume 59, Issue 4, Pages 373-385

Abstract: The use of Adobe Photoshop to enhance images containing latent print detail is well documented. There are many techniques ranging from the simple use of color channels and brightness and contrast functions to tools such as the Channel Mixer. These techniques work effectively on single color backgrounds, but when multiple colors exist, these techniques, in addition to others, are required in combination to achieve the desired result. There now exists another option – the Black & White adjustment function – in Photoshop CS3. This function enables the isolation of specific color information in a monochrome image.

Handprints on the Floor

Author(s): Hill, S.

Type: Case Report

Published: 2009, Volume 59, Issue 4, Pages 386-389

Abstract: Latent hand prints that ultimately identified the suspect were developed on the floor.

Qualitative Assessment of Skin Deformation: A Pilot Study

Author(s): Maceo, A. V.

Type: Article

Published: 2009, Volume 59, Issue 4, Pages 390-440

Abstract: Friction ridge skin deforms each time it contacts a surface. The primary factors determining the limits of skin deformation under applied stress to a fixed surface are the elastic nature of the friction ridge skin and the structure of the hand or foot area contacting the surface. This pilot study explored the flexibility of the distal phalanx of two index fingers of a single donor when compressive stress (deposition pressure) and tangential stresses (vertical sheering stress, horizontal sheering stress, and torque) were applied to a smooth, flat surface. The flexibility of the skin was found to be dependent upon the amount of compressive stress applied, the direction of tangential stress, and ridge flows in the fingerprint pattern. In addition to exploring the limits of skin flexibility, the effects of these different stresses were studied in latent prints generated under these conditions. The latent prints displayed robust clues that permit interpretation of the skin deformation by properly trained specialists.[See correction in JFI 59 (5).]

Evaluation of Available Techniques for the Recovery of Latent Fingerprints from Untreated Plywood Surfaces

Author(s): NicDaeid, N.; Buchanan, H. A. S.; Laing, K.

Type: Technical Note

Published: 2009, Volume 59, Issue 4, Pages 441-465

Abstract: An evaluation of several current techniques available for the detection of fingerprints was undertaken to identify the technique(s) most suitable for recovering fingerprints from untreated plywood surfaces. This substrate is often encountered operationally, particularly in doors of local authority premises. This study evaluated the abilities of 13 fingerprint development techniques to enhance marks deposited on untreated plywood surfaces. Each detection technique was applied to fingerprints that had been deliberately planted on pieces of plywood by three donors who had been evaluated as "good", "average", and "poor" donors. The most successful fingerprint development techniques were then more rigorously tested on prints of varying ages, and effort was made to determine the most effective sequence for recovering prints from simulated casework. Of the techniques examined, both ninhydrin and physical developer were found to recover prints up to 28 days old. (Prints older than 28 days were not tested.) A dilution of household bleach was found to successfully darken prints weakly developed with physical developer, and the best recovery of fingerprints was achieved through the application of physical developer only, rather than with a sequence of techniques.

Back to Basics

Author(s): Siegel, S. D.

Type: Back to Basics

Published: 2009, Volume 59, Issue 4, Page 472

Abstract: This unusual amputation was submitted by Chuck Colman when he was working with the Anchorage Alaska Police Department. In his letter he stated that an officer injured his left ring finger, causing the loss of his finger joint and most of the skin tissue. The lower skin tissue and pattern area were still present. The doctor pulled the skin up and over the end of the second joint. The pattern showing is a whorl. Classification would depend on the initiative of the person recording the ridge detail (i.e., whether the person printed the back of the finger on the back of the card, rolled the finger up and over in the block, or just rolled it side to side). As a latent examiner, I would like to see all detail recorded, but I realize the limitations presented with live scan systems.

Does CA Fuming Interfere with Powder Suspension Processing?

Author(s): Scott, M.

Type: Correction

Published: 2009, Volume 59, Issue 3, Page 267

Abstract: This article contains a statement on page 144 that reads "A previous article has suggested that subjecting these particular items to cyanoacrylate fumes somehow inhibits the process of a powder suspension mixture (e.g., Sticky-side Powder) [1]". It has been brought to the editor's attention that this statement is misleading. The cited reference: Pleckaitis, J. Developing Friction Ridge Detail on the Interior of Latex and Nitrile Gloves. *J. For Ident.* 2007, 57 (2) does not advocate the use of Sticky-side Powder in the described circumstances and should not have been referenced for that information. The cited reference recommended using Wetwop, not Sticky-side Powder. The author apologizes for this error.

The Correlation of Dental Arch Width and Ethnicity

Author(s): Radmer, T. W.; Johnson, L. T.

Type: Technical Note

Published: 2009, Volume 59, Issue 3, Pages 268-274

Abstract: This study sought to demonstrate a correlation between arch width, ethnic background, individual height, weight, and whether orthodontic treatment had been rendered. Conclusions revealed that arch widths were significantly larger ($p= 0.002$ for the mandible and $p= 0.008$ for the maxilla) in non-Whites than in Whites. In

addition, arch widths of the mandible were significantly larger in individuals who had had orthodontic treatment compared to those who had not ($p=0.005$). This did not carry through to those arch widths in the maxilla of orthodontic versus nonorthodontic care ($p=0.258$).

What the Future Can Hold: A Look at the Connectivity of Automated Fingerprint Identification Systems

Author(s): Hutchins, L. A.

Type: Technical Note

Published: 2009, Volume 59, Issue 3, Pages 275-284

Abstract: In 2006, the United States Congress appropriated funding to the National Academy of Sciences (NAS) to study the needs of the forensic science community. Of the eight topics under study, one topic dealt with the interoperability of automated fingerprint identification systems (AFISs). Inherent to the topic of interoperability is the issue of standards, or lack thereof. This paper addresses the inability to standardize AFISs in order to interoperate and proposes the solution of connectivity with regards to the exchange of AFIS information.

Development of Latent Fingerprints on Reptile Skin

Author(s): Eveleigh, G.

Type: Technical Note

Published: 2009, Volume 59, Issue 3, Pages 285-296

Abstract: Research was conducted on the possibility of developing usable friction ridge skin impressions (fingerprints) from the skin of reptiles. The researcher's fingerprints were placed on 48 reptiles, in some cases, multiple times on the same reptile. Most of the reptiles produced good-quality developed fingerprints. The research showed that prints of value can be developed on reptile skin under the pristine conditions of a laboratory experiment.

Safety Notice for Latent Print Chemical Explosion

Author(s): Tierney, L. J.

Type: Case Report

Published: 2009, Volume 59, Issue 3, Pages 297-301

Abstract: The dye stain RAM is often used as a follow-up to fuming evidence with cyanoacrylate esters for latent prints. This paper discusses an important reason to follow all recommended safety precautions for the storage and shelf life of RAM.

Using Fingerprint Powder to Record Friction Ridge Details from a Cadaver

Author(s): Modeste, K. I.; Anderson, B.

Type: Case Report

Published: 2009, Volume 59, Issue 3, Pages 302-307

Abstract: This case demonstrates the use of black powder to provide distinct friction ridge detail in the photographed images of a cadaver hand.

Spectral Variations for Reaction Products Formed Between Different Amino Acids and Latent Fingerprint Detection Reagents on a Range of Cellulose-Based Substrates

Author(s): Spindler, X.; Stoilovic, M.; Lennard, C.; Lennard, A.

Type: Article

Published: 2009, Volume 59, Issue 3, Pages 308-324

Abstract: Ninhydrin, 1,2-indanedione, 1,2-indanedione-zinc, and 1,8-diazafluoren-9-one (DFO) are reagents used worldwide for latent fingerprint detection on paper substrates. Although research groups have concentrated on optimization studies and improvements in reagent formulations, mechanistic studies and comparisons against the different amino acid constituents in eccrine secretions are rare in the literature. It is known from studies undertaken in different geographic areas that these reagents produce varied results on different paper substrates under different environmental conditions; however, such observations have not been quantified. In this study, ninhydrin, indanedione, indanedione-zinc, and DFO reagents have been used to enhance deposits of nine major amino acids on three types of cellulose-based media: ashless filter paper, 10% recycled copy paper, and cellulose-coated TLC plates. Absorption and luminescence spectra were recorded for the resulting reaction products. The results provide some insight into the activity of these fingerprint detection reagents with respect to the different amino acids present in eccrine deposits.

The Recoverability of Fingerprints on Paper Exposed to Elevated Temperatures — Part 1: Comparison of Enhancement Techniques

Author(s): Dominick, A. J.; NicDaeid, N.; Bleay, S.; Sears, V. G.

Type: Article

Published: 2009, Volume 59, Issue 3, Pages 325-339

Abstract: This research investigates the recoverability of fingerprints that have been exposed to elevated temperatures, such as those found in arson scenes. Arson is an expensive crime, costing the United Kingdom's economy, on average, £53.8 million each week [1]. Anything that may give rise to the identity of the fire setter should be analyzed and, as such, unburned paper may be a potential source of fingerprints. Although it is true that even a moderate fire will obscure and render partially useless some types of evidence, many items, including fingerprints, may still survive [2-4]. This research has shown that fingerprints are still retrievable from paper that has been subjected to the maximum testing conditions of 200 °C for 320 minutes. In fact, some fingerprints naturally enhanced themselves by the heating process. Our research indicates the most effective enhancement technique is 1,8-diazafluoren-9-one (DFO) for exposure temperatures up to 100 °C. Physical developer (PD) is the most effective enhancement technique for exposure temperatures from 100 °C to 200 °C. For porous surfaces, there are fingerprint development techniques that are effective at enhancing fingerprints that have been exposed to a temperature of 200 °C, regardless of the firefighting extinguishing technique. Physical developer, in addition to developing fingerprints that have been exposed to high temperatures, is one of the few processes that will enhance fingerprints on wetted surfaces.

The Recoverability of Fingerprints on Paper Exposed to Elevated Temperatures — Part 2: Natural Fluorescence

Author(s): Dominick, A. J.; NicDaeid, N.; Bleay, S.; Sears, V. G.

Type: Article

Published: 2009, Volume 59, Issue 3, Pages 340-355

Abstract: Previous work by the authors [1] investigated the recoverability of fingerprints on paper that had been exposed to elevated temperatures by comparing various chemical enhancement techniques (ninhydrin, 1,8-diazafluoren-9-one, and physical developer). During that study, it became apparent, as a consequence of observations made in operational work [2], that fingerprints on paper subjected to 150 °C fluoresced under examination with green light of wavelength 473 to 548 nm with a 549 nm viewing filter. This current work

examined the three types of prints (eccrine, sebaceous, and ungrooved) after 20 minutes of exposure to the temperature range 110 °C to 190 °C (in 10 °C increments) and found that the eccrine fingerprints fluoresced more brightly. This indicates that it is a component of the eccrine deposit that causes the fluorescence. Luminance measurements found that the maximum fluorescence was experienced at 170 °C on the two types of paper tested. As a consequence, eccrine heat-treated fingerprints were viewed under violet-blue (350 to 469 nm), blue (352 to 509 nm), and green light Journal of Forensic Identification 59 (3), 2009 \ 341 (473 to 548 nm). The greatest luminance intensities were obtained under blue light and the smallest under green light. To determine which component of the eccrine fingerprint caused this fluorescence, five of the most prevalent amino acids (alanine, aspartic acid, glycine, lysine, and serine) [3, 4] were exposed to this temperature range. The luminance measurements were taken under exposure to the green light in order for the minimum fluorescence to be observed, with an assumption that blue-violet or blue illumination would provide brighter fluorescence in practice. The results indicate that four of the amino acids behave similarly across the temperature range, but with slightly different luminance measurements, but all exhibit some level of fluorescence. Thermal degradation products of alanine and aspartic acid have been suggested by Richmond-Aylor et al. [5] The structure of these thermal degradation products is cyclic in nature, and, therefore, there is a possibility that two of these products would fluoresce. Sodium chloride and urea were also exposed to the temperature range and they also fluoresced to some extent. This work shows that eccrine fingerprints that have been exposed to temperatures between 130 °C to 180 °C will fluoresce under violet-blue, blue, and green light. This level of fluorescence for ungrooved fingerprints is much less, but this will be dependent on the individual – the more eccrine the deposit, the stronger the fluorescence. This work shows that the amino acids, sodium chloride, and urea present in fingerprint deposits contribute to the fluorescence of the print, but may not be the sole contributors because other eccrine components have not yet been tested.

Back to Basics

Author(s): Siegel, S. D.

Type: Back to Basics

Published: 2009, Volume 59, Issue 3, Page 362

Abstract: This pattern would be classified as a loop and referenced to a tented arch. The delta is the ending ridge at the point of divergence. An imaginary line from the core to the delta cuts the re-curve. If the delta had been located above the shoulders, then it would have been a tented arch and referenced to a loop. With enough pressure, the gap could be filed in, so it could also be referenced to a plain arch. The dot is not the same width as the surrounding ridges, so it would not be considered as the delta. Thank you to Retired Identification Officer Robert Nelson from Minneapolis MN for this submission.

Is There a Relationship Between Fingerprint Donation and DNA Shedding?

Author(s): Dominick, A. J.; Welch, L. A.; NicDaeid, N.; Bleay, S.

Type: Technical Note

Published: 2009, Volume 59, Issue 2, Pages 133-143

Abstract: This research investigates the possible relationship between fingerprint donation and DNA shedding. The level of fingerprint detail developed and DNA profiling results obtained were compared for each donor to investigate whether a relationship between fingerprint donation and DNA shedding exists. Our results suggest that between comparisons of donors, there is no statistical difference between the left and right hand of our volunteers in terms of fingerprint donation, but there is a statistical difference in terms of DNA shedding with three of our eight donors. Our results also indicate that there is no correlation between fingerprint donation and DNA shedding, meaning that an enhanced fingerprint with full ridge detail will not necessarily give a full DNA profile. In serious crime, these two avenues of evidence must be explored.

Does CA Fuming Interfere with Powder Suspension Processing?

Author(s): Scott, M.

Type: Technical Note

Published: 2009, Volume 59, Issue 2, Pages 144-151

Abstract: A test was designed to evaluate whether cyanoacrylate fuming of latex and nitrile gloves and assorted tapes (duct tape, masking tape, and scotch tape) prior to processing the items with a powder suspension technique was a hinderance to the development of latent prints. These tests confirmed a prior reported test that indicated that cyanoacrylate fuming can interfere with subsequent powder suspension processing. (See correction in JFI 59 (3).)

Methods for Developing and Preserving Prints in Petroleum Jelly

Author(s): Snyder, C.

Type: Technical Note

Published: 2009, Volume 59, Issue 2, Pages 152-171

Abstract: Prints in petroleum jelly were observed on a petroleum jelly jar recovered from a sexual battery case in 2005. Because of the lack of techniques known to enhance and document prints in petroleum jelly, multiple methods were tested. Multiple consistencies of the prints in petroleum jelly were tested using various processing and casting methods under two temperature conditions. The best method to enhance and record prints in petroleum jelly was determined to be photographing with oblique light, casting with Mikrosil, and then processing with Sudan black (all at room temperature).

Forensic Analysis of Oxidative Hair Dyes from Commercial Dyes and Dyed Hair Samples by Thin-Layer Chromatography

Author(s): Singh, D.; Garg, R. K.

Type: Technical Note

Published: 2009, Volume 59, Issue 2, Pages 172-189

Abstract: In this research, brands of hair dyes were differentiated by using thin-layer chromatography. Propan-1-ol was found to be an efficient solvent for eluting dye from hair samples. A solvent system (ethyl methyl ketone/choloroform/ammonia 20:80:1.5) was developed for the thin-layer chromatographic analysis of all types of oxidative hair dyes, including dyes extracted from hair samples.

Using Ninhydrin to Reconstruct a Disturbed Outdoor Death Scene

Author(s): Carter, D. O.; Filippi, J.; HigleyL.G.; Huntington, T. E.; Okoye, M. I.; Scriven, M.; Bliemeister, J.

Type: Case Report

Published: 2009, Volume 59, Issue 2, Pages 190-195

Abstract: Ninhydrin reacts with various nitrogen-containing compounds, including some that are released from a body during decomposition. Previous research has shown that ninhydrin can be used to identify gravesoils, however, its potential value in death scene reconstruction has not been previously demonstrated. To explore this possibility, the concentration of ninhydrin-reactive nitrogen (NRN) was measured in soil associated with a scavenged death scene where the remains had been scattered. Levels of NRN in the decomposition area were 7 to 13 times higher than in other areas of the scene (under lower body, upper limb, manure and fecal matter, scalp) after more than a four-month postmortem interval. The ability to reconstruct the scene was enhanced, as this measure identified the most probable location of death and decomposition prior to disturbance.

Recovering Impressions from Polystyrene

Author(s): Bekiempis, E.

Type: Case Report

Published: 2009, Volume 59, Issue 2, Pages 197-204

Abstract: This experiment was conducted to discover the most successful method of recovering a footwear impression from a polystyrene cup. Several methods of processing and recovery were compared. The casting of the impression with Forensic Sil and dental stone both demonstrated very good results.

Predicting Biological Profiles from Prescription Eyewear: A Pilot Study

Author(s): Berg, G. E.; Ta'ala, S. C.

Type: Article

Published: 2009, Volume 59, Issue 2, Pages 205-218

Abstract: When unidentified human remains are recovered, valuable evidence to determine identity often comes from the nonskeletal material associated with those remains. In light of this observation, the following study presents a test of the hypothesis that, in cases where prescription glasses are found in association with human remains or at a crime scene, data from those glasses may be used to estimate the wearer's age, sex, or race. The study utilized data from the prescription glasses or current eye exams of 97 volunteers. Each anonymous volunteer provided information about his or her age, sex, and race. An automated lens analyzer was used to read prescriptions from glasses provided by volunteers, and the glasses were then returned to volunteers using a drop-off box with an anonymous numbering system. Data collected from lenses and prescriptions were compared to two large databases comprised of eyeglass prescriptions from more than 12,000 individuals in a variety of age, sex, and racial categories. To attempt to estimate the age, sex, and race of the study volunteers from their prescriptions, three methods were applied. The results of the study indicate that one of the methods for estimating age within ± 10 years had an 81% accuracy rate; age (± 10 years) was correctly predicted in 100% of cases with bifocal prescriptions ($n=31$). Sex and race could not be estimated with sufficient accuracy using any of the three methods applied in this study. Although the study resulted in the null hypothesis in terms of estimating sex and race using prescription lenses, the ability to estimate an unknown individual's age would be useful in many cases, particularly in instances of advanced age, where traditional age estimation methods fare poorly. Such a method could also prove invaluable in the (albeit rare) instances where a perpetrator leaves glasses behind at a crime scene.

A Performance Study of the ACE-V Process: A Pilot Study to Measure the Accuracy, Precision, Reproducibility, Repeatability, and Biasability of Conclusions Resulting from the ACE-V Process

Author(s): Langenburg, G. M.

Type: Article

Published: 2009, Volume 59, Issue 2, Pages 219-256

Abstract: Six fingerprint analysts participated in a series of tests to measure the accuracy, precision, reproducibility, repeatability, and biasability during 60 ACE and 60 ACE-V trials. The results of the ACE testing, where each analyst received the same set of 60 fingerprint comparisons, showed 100% accuracy for all trials where an opinion of identification was reported ($N=268$) and an 86% accuracy for all trials where an opinion of exclusion was reported ($N=14$). The precision tests for the four categorical opinions reported (i.e., identification, exclusion, inconclusive, and no value) all passed threshold criteria that were determined before the test was administered. Reproducibility (the ability of the experts to all reach the same result independently) and repeatability (the ability of the test to provide the same answer upon re-analysis of the material) were both

assessed in these experiments. The results varied depending on the amount of information present in the friction ridge impressions and generally how the images were presented to the participants. The ACE-V trials demonstrated 100% accuracy for all trials where an opinion of identification was reported (N=271) and a 67% accuracy for all trials where an opinion of exclusion was reported (N=18). The precision tests for the four categorical opinions during the ACE-V trials showed higher precision than ACE trials during the verification stage.

The results showed a high degree of accuracy with respect to opinions where identification was reported, but lower accuracy with respect to opinions of exclusion. The number of erroneous exclusions actually doubled when a verifier was present to verify exclusions (versus when there was no verifier). However, the verifiers caught every false positive presented to them (N=9). This included close nonmatches that were presented by a trusted colleague as an identification. No erroneous exclusions were caught by verifiers. This demonstrated a strong resistance to bias with respect to identifications but a high degree of bias susceptibility towards exclusions during a nonblind verification procedure.

Documents: The Developer's Toolkit

Author(s): McKasson, S.

Type: Book Review

Published: 2009, Volume 59, Issue 2, Pages 258-259

Back to Basics

Author(s): Siegel, S. D.

Type: Back to Basics

Published: 2009, Volume 59, Issue 2, Page 266

Abstract: The pattern type is not in question. It is a loop. It is the core that is interesting. You have to determine the sufficient recurve before you can determine the core placement. I believe the outer recurve in image B is sufficient. If you look at image A, the innermost is not one continuous recurring ridge. The right bifurcation has a break and does not come around enough to form a shoulder. This submission was by Retired CLPE Thomas Lewis from Pensacola Florida. He called it a DNA fingerprint due to the innermost spikes having the appearance of human chromosomes. Thank you to Mr. Lewis.

Comparison of Vacuum Metal Deposition and Powder Suspension for Recovery of Fingerprints on Wetted Nonporous Surfaces

Author(s): NicDaeid, N.; Carter, S.; Laing, K.

Type: Correction

Published: 2009, Volume 59, Issue 1, Page 1

Abstract: On page 610 of the September/October 2008 issue of the Journal of Forensic Identification (volume 58, issue 5), the caption was incorrectly worded. The caption of Figure 5 indicated that the prints were developed on clear plastic sandwich bags. The caption should have read "... developed on cowlings", as shown below. The authors and editor apologize for this error.

Back to Basics

Author(s): Siegel, S. D.

Type: Back to Basics

Published: 2009, Volume 59, Issue 1, Page 129

Abstract: The left figure and comments were published in the November 1951 issue of Identification News Letter and the right figure and comments followed in December 1951. In the December issue, Paul McCann suggested publishing unusual fingerprints on a regular basis. They originally appeared under the column title "How Would You Classify It?" Unusual prints did not become a regular feature until October 1985, with John Douthit as the coordinator of "Back to Basics". John retired from the position with the May/June 2002 issue and Karen Hamm Osborn became the next coordinator in the July/August 2002 issue. She continued the feature until the November/December 2008 issue. As the new coordinator, I thought it appropriate to reflect on the history of this column.

Re: New Method for Examining the Inside of Footwear, J. For. Ident. 58 (3)

Author(s): Johnson, G. M.

Type: Letters

Published: 2009, Volume 59, Issue 1, Pages 2-6

The Impact of Cold Climate on the Decomposition Process

Author(s): Bunch, A. W.

Type: Technical Note

Published: 2009, Volume 59, Issue 1, Pages 26-44

Abstract: Studies of environmental factors affecting postmortem interval have been ongoing in particular regions of the United States for decades. Various data have been collected on pig and rabbit carcasses and human cadavers. Data collection techniques vary. For example, still photos, field notebooks, and video cameras have been used to document the decomposition process in a variety of controlled situations. To date, no experimental, systematic decomposition study has been conducted in a relatively cold environment. This qualitative, observational study is a beginning attempt to fill this gap in the literature. The results of this study may be useful as comparative data for forensic scientists and will also be directly applicable for use by the medicolegal community. It is important to note that not only local law enforcement, medical examiners, and forensic anthropologists will find this information useful, but also those located in similar climates in the United States, Canada, and abroad may be able to use these results for their own comparative purposes.

Enhancement of Aged Shoeprints in Blood

Author(s): Morgan-Smith, R. K.; Elliot, D. A.; Adam, H.

Type: Technical Note

Published: 2009, Volume 59, Issue 1, Pages 45-50

Abstract: Shoeprints in blood deteriorate over time, even in indoor or sheltered environments. Of the reagents tested, ninhydrin was the best reagent for treating aged impressions on paper substrates. On wooden and linoleum substrates, amido black was the best of the reagents tested.

Bullet Trajectory Reconstruction on Vehicles

Author(s): Vivona, B.; Gaspari, M.

Type: Case Report

Published: 2009, Volume 59, Issue 1, Pages 51-58

Abstract: Numerous challenges are faced when reconstructing bullet trajectories fired at a vehicle because of the irregular surfaces of the vehicle, impacts through open windows, and deflections. Creating and using baselines around a vehicle allows for measuring trajectory angles in relation to each other, the vehicle itself, and the angle of declination.

Locating Latent Bloodstains

Author(s): Ellis, E. L.; Wong, T. P.; Bowers, S. W.

Type: Case Report

Published: 2009, Volume 59, Issue 1, Pages 59-64

Abstract: This stabbing case illustrates the usefulness of Bluestar Forensic Latent Detection Reagent for the detection of latent bloodstain evidence.

The Effects of Aerosolized Bacteria on Fingerprint Impression Evidence

Author(s): Wilkinson, D.; Larocque, S.; Astle, C.; Vogrinetz, J.

Type: Article

Published: 2009, Volume 59, Issue 1, Pages 65-79

Abstract: The distribution of letters containing viable *Bacillus anthracis* spores throughout the United States in 2001 demonstrated a lack of interoperability between public health and law enforcement sectors. Although protocols for sampling and analysis of the biological agent and the physical evidence have since been developed and exercised by multidisciplinary response teams, the processing of contaminated evidence presents challenges to the forensic community. In this research, latent and blood-contaminated fingerprints on a variety of substrates were contaminated by aerosolized bacteria: *Bacillus globigii* (spore), *Bacillus atrophaeus* (formerly *Bacillus subtilis* var. *niger*) (vegetative), and *Pantoea agglomerans* (formerly *Erwinia herbicola*) (vegetative) (standard simulants for anthrax, plague, and tularemia). All fingerprint reagents performed well in the presence of biological agents. Increased exposure time and aging samples prior to exposure did not influence the number of detected fingerprints. Standard protocols for surface sampling resulted in no viable organisms for the fragile vegetative bacteria. Instead, a settling plate protocol was used to determine their surface contamination.

Use of Liquid Nitrogen to Separate Adhesive Tapes

Author(s): Bergeron, J.

Type: Technical Note

Published: 2009, Volume 59, Issue 1, Pages 7-25

Abstract: Various types of tape were used as samples to test the use of liquid nitrogen as a method to separate tapes that have been stuck to together. The research included tests to determine whether latent prints could survive the liquid nitrogen bath and separation of the tapes and be developed using Sticky-side Powder. The detrimental effect of outdoor exposures to the tapes was also explored. The results show that developing latent prints on the adhesive side of tape that has been stuck to another adhesive side or a nonadhesive side of tape is possible. Outdoor exposures did reduce the likelihood of developing prints.

Single-Metal Deposition: Optimization of this Fingerprint Enhancement Technique

Author(s): Durussel, P.; Stauffer, E.; Becue, A.; Champod, C.; Margot, P.

Type: Article

Published: 2009, Volume 59, Issue 1, Pages 80-96

Abstract: Following the introduction of single-metal deposition (SMD), a simplified fingerprint detection technique based on multimetal deposition, optimization studies were conducted. The different parameters of the original formula were tested and the results were evaluated based on the contrast and overall aspect of the enhanced fingerprints. The new formula for SMD was found based on the most optimized parameters. Interestingly, it was found that important variations from the base parameters did not significantly affect the outcome of the enhancement, thus demonstrating that SMD is a very robust technique. Finally, a comparison of the optimized SMD with multimetal deposition (MMD) was carried out on different surfaces. It was demonstrated that SMD produces comparable results to MMD, thus validating this technique.

Distinctiveness of Nonstandard VHS Head Parameters

Author(s): Koenig, B. E.; Lacey, D. S.

Type: Article

Published: 2009, Volume 59, Issue 1, Pages 97-126

Abstract: This research article analyzes fifteen nonstandard head parameters, on eight NTSC video cassette recorders using 112 test recordings, to determine whether they are useful in matching a particular recording to a specific VHS unit. These tests resulted in more than 10,000 separate measurements of amplitude, timing, azimuth, head-to-head distance, and waveform shaping. Four parameters were found to be useful for comparisons between unknown recordings and tests prepared on the video recorders: (1) the playback time between the end of the hi-fi audio and the linear audio erase head, (2) the playback time between the end of the hi-fi audio and the full-track erase head, (3) the playback time between the linear audio and the full-track erase heads, and (4) the waveform signature of the linear audio erase head. Three additional parameters were found to be comparable with only certain recorders, but the eight remaining parameters were insufficiently distinct for most forensic applications.

The Federal District and the 12-Point Rule in Brazil

Author(s): Dias da Costa, N.

Type: Commentary

Published: 2008, Volume 58, Issue 6, Pages 621-623

Flammable Solvent Detection Directly from Common Household Materials Yields Differential Results: An Application of Direct Analysis in Real-Time Mass Spectrometry

Author(s): Coates, C. M.; Coticone, S.; Barreto, P. D.; Cobb, A. E.; Cody, R. B.; Barreto, J. C.

Type: Technical Note

Published: 2008, Volume 58, Issue 6, Pages 624-631

Abstract: In this study, we report the analysis of volatile flammable solvents present on common household materials by employing a mass spectrometric technique that incorporates a novel ion source: direct analysis in real time (DART). We used the new ionization method to directly volatilize and ionize a solvent sample, which

was then sent to a high-resolution mass spectrometer. We analyzed two common flammable solvents, gasoline and paint thinner, directly from cotton, drywall, and nylon materials. DART sampling occurs directly from the chemical matrix of the common household materials, with no sample preparation needed. Cotton swabs containing solvents, gasoline, and paint thinner produced characteristic signature peaks. In addition, different substrates (cotton, nylon, and drywall) containing gasoline and paint thinner were tested to determine the possibility of detecting aromatic and aliphatic solvents from a complex chemical matrix using DART technology. Specifically, we discovered that nylon was a poor substrate for DART detection of gasoline, with the entire signal disappearing in only two hours. Surprisingly, DART easily detected Journal of Forensic Identification 58 (6), 2008 \ 625 paint thinner on nylon even after 16 hours. Notably, DART was effective in all other cases, detecting both paint thinner and gasoline over a 0- to 16-hour period on cotton and drywall substrates. We conclude that DART sample detection directly from household materials is not simply a matter of vapor pressure; instead, direct DART detection is probably dependent on a complex interaction involving adsorption effects or matrix effects on the ionization mechanism of the flammable solvents. We demonstrate and report a potentially simple, powerful, and useful alternative to traditional mass spectrometric analysis.

Forensic Authentication of Digital Video Tapes

Author(s): Perraud, D.

Type: Technical Note

Published: 2008, Volume 58, Issue 6, Pages 632-635

Abstract: This paper presents a new method for the authentication of DV videotapes based on the analysis of the DIF blocks of the digital video stream. In addition, research has been conducted to determine which kind of hardware has been used to produce the videotape and by what method, if any, the tape may have been tampered with.

High Dynamic Range Fingerprint Images in Photoshop

Author(s): Day, C.

Type: Technical Note

Published: 2008, Volume 58, Issue 6, Pages 647-659

Abstract: The use of a high dynamic range (HDR) image can extend the normal luminance values in an image. The author presents a step-by-step tutorial for creating and using HDR images in a forensic application.

Air Pressure and Cargo Weight Affect the Width of Tire Impressions

Author(s): Lemay, J.; Adair, T. W.; Fisher, A.; James, J.; Boltman, B.

Type: Technical Note

Published: 2008, Volume 58, Issue 6, Pages 660-665

Abstract: It is commonly understood that varying air pressure in a pneumatic tire can affect the size of the contact patch (the area of tire in contact with the road) [1]. A tire with low air pressure will have a longer contact patch than one with higher pressure. In this study, the authors made test impressions of tires at various air pressures and with various weights of cargo in the vehicle to determine whether the width of a tire impression will change based on those variables. The results of these experiments supported the hypothesis that the contact patch width will vary with changes in tire pressure and cargo weight.

Who was Driving?

Author(s): White, K. T.

Type: Case Report

Published: 2008, Volume 58, Issue 6, Pages 666-669

Abstract: Both occupants of a vehicle that was involved in a fatal crash denied being the driver. An impression on one of the occupant's footwear was consistent with the brake pedal pad and revealed who was driving at the time of the accident.

Extraction of DNA from 8-Year-Old Acid Phosphatase Test Papers in a Gang Rape Case

Author(s): Brauner, P.; Barash, M.; Reshef, A.; Michael, A.

Type: Case Report

Published: 2008, Volume 58, Issue 6, Pages 671-681

Abstract: In 1997, a woman reported being raped by two men. A positive result for the possible presence of semen by the acid phosphatase (AP) method was obtained on different areas of the woman's clothing. The filter papers used in those tests were retained. In 2005, the case was re-opened for investigation. Biological material eluted from the 8-year-old AP papers in this case contained intact sperm cells. Moreover, DNA, preferentially extracted from the AP papers, was demonstrated to be amplifiable by the AmpFISTR SGM Plus kit. The relevance of the profiling of AP papers to postconviction DNA testing is discussed.

The Ontogeny of the Friction Ridge: A Unified Explanation of Epidermal Ridge Development with Descriptive Detail of Individuality

Author(s): Swofford, H. J.

Type: Article

Published: 2008, Volume 58, Issue 6, Pages 682-695

Abstract: The use of friction ridge skin as a means of personal identification has withstood more than a century of scrutiny, where no two fingerprints have been found to be identical. However, in a new age of forensic science, this single statement is no longer a sufficient explanation of individuality. Research conducted by a number of biological and anatomical scientists during the last century has resulted in a number of consistent, but also some conflicting, hypotheses of friction ridge development. This review, therefore, serves as a culmination of scientific studies to provide a better explanation of friction ridge development and its uniqueness from a collage of concurring observational findings reported by these investigators. A consideration of those observations and theories agreed upon by all researching parties will provide latent print examiners with a better understanding of the scientific basis of the ontogenesis of friction ridges, thereby revealing the manner in which embryologic tensions and stresses result in the uniqueness of such ridges.

The Significance of Butterflies

Author(s): Pierce, D. S.; Turnidge, S. S.

Type: Article

Published: 2008, Volume 58, Issue 6, Pages 696-711

Abstract: A consistent aspect of science is that the answering of one question often leads to the asking of several others. This evolution of discovery is how those who apply the scientific method gain a depth of understanding that goes beyond that of a lay person. Although there are various niche elements within fingerprint science, this article hopes to create discussion and examination of just one small aspect of the discipline: how

some friction ridge impressions, particularly fingerprints, can possess some differences in appearance, which at the outset appear to invoke the "one discrepancy rule", yet upon closer analysis remain suitable for individualization.

Historic Superimposed Image of John Paul Jones was the Brainchild of American Diplomat Horace Porter: Update to Rogers, 2005

Author(s): Rogers, N. L.; Goodheart, A.

Type: Article

Published: 2008, Volume 58, Issue 6, Pages 712-722

Abstract: An earlier article presented evidence that, contrary to published reports, the first modern forensic photographic superimposition was conducted in 1907 to confirm the probable identification of American hero John Paul Jones. In the time since that 2005 Journal of Forensic Identification article was published, evidence was discovered in the manuscript collections of the Naval Historical Center in Washington, D.C. that the original idea for superimposition should be credited to Horace Porter, an American patriot who conducted the successful search for the body of John Paul Jones in Paris more than a century after his death. Porter's idea for the superimposition followed in an earlier, less scientifically rigorous tradition of superimposing drawings over paintings or photographs rather than using two photographic images. Nevertheless, without his original suggestion, the superimposition of the two photographs would not have been conducted. We are pleased to add to General Horace Porter's credentials by documenting his initiation of the scientific and technical aspects of the first forensic photographic superimposition, conducted by Charles West Stewart and anonymous printers at the U.S. Government Printing Office in 1907.

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2008, Volume 58, Issue 6, Pages 727-728

Abstract: This interesting left thumb print has unusual ridge flow. This print is a PLAIN ARCH, but should be referenced to a small to medium count LEFT SLANT LOOP, should a fuller roll reveal a recurving ridge and delta on the right side. This unusual pattern was contributed by Charles Martinez, Denver Police Crime Laboratory, Denver, Colorado.

Examination and Evaluation of .177 Caliber Pellet Wipe Patterns Using Sodium Rhodizonate.

Author(s): Bailey, J. A.; Swart, D. J.; Finch, H. L.

Type: Technical Note

Published: 2008, Volume 58, Issue 5, Pages 505-514

Abstract: A study was conducted to test for lead on pellet wipe patterns produced with .177 caliber air gun pellets. Seventy varieties of air gun pellets were used to produce pellet wipe patterns on white, 100% cotton fabric targets. A macroscopic examination of the pellet wipe pattern areas on the fabric targets revealed different levels of visible pellet wipe around the pellet hole periphery (PHP). Each pellet was recovered and photographed adjacent to the pellet wipe area. The PHP was tested with sodium rhodizonate for the detection of lead produced from the air gun pellet. Of the pellets used to produce pellet wipe targets, 69 (99%) of the targets yielded a positive reaction for metal ions. One pellet (1%) did not produce a reaction to the sodium rhodizonate test. Forty-three (61%) yielded a positive reaction for lead; however, 27 (39%) tested positive for metal ions but not for lead.

New System for the Acquisition of Fingerprints by Means of Time-Resolved Luminescence

Author(s): Moszczyński, J.; Siejca, A.; Ziemnicki, L.

Type: Technical Note

Published: 2008, Volume 58, Issue 5, Pages 515-523

Abstract: The development of latent fingerprints on strongly fluorescent substrates poses serious problems when traditional luminescence methods are used. This problem can be overcome by recording time-resolved luminescence of latent prints. This paper presents the construction and operation of a state-of-the-art electro-optical station, which allows short-lived background fluorescence to be chopped off from a longer-lived fingerprint luminescence, consequently leading to the acquisition of nondisturbed latent print images.

Albumin Development Method to Visualize Friction Ridge Detail on Porous Surfaces

Author(s): Reinholz, A. D.

Type: Technical Note

Published: 2008, Volume 58, Issue 5, Pages 524-539

Abstract: Research was conducted to determine whether an additional method could be developed to visualize latent friction ridge detail on porous evidence surfaces. This research was stimulated by a need to find more effective, reproducible, and safer methods of development that will work in conjunction with already accepted techniques. This new method targets albumin residue in sweat secretions and uses crossover technology from serology, the modified Western Blot method, to develop ridge details.

Using Liquid Latex to Remove Soot to Facilitate Fingerprint and Bloodstain Examinations: A Case Study

Author(s): Larkin, T. P. B.; Marsh, N. P.; Larrigan, P. M.

Type: Case Report

Published: 2008, Volume 58, Issue 5, Pages 540-550

Abstract: Liquid latex was applied to surfaces at a homicide scene to remove soot from the surfaces to allow further fingerprint examinations. The latex was allowed to dry and, when peeled from the surfaces, the majority of the soot was removed. Numerous fingerprints were located; some were identified to the suspect and to persons of interest in this case. This is an inexpensive, fast, and effective method for soot removal that does not affect further forensic examinations.

Probability of False Positive with an Innocent Image Processing Routine

Author(s): Li, F.

Type: Article

Published: 2008, Volume 58, Issue 5, Pages 551-561

Abstract: The probability that an image processing routine will result in a change to an image used in a fingerprint comparison such that a false positive conclusion will be made is presented. When the good faith of the examiner in the usual course of such work is assumed, the probability of such false positive conclusion (as a result of an image processing routine) is infinitesimal.

Level 3 Details and Their Role in Fingerprint Identification: A Survey among Practitioners

Author(s): Anthonioz, A.; Egli, N.; Champod, C.; Neumann, C.; Puch-Solis, R.; Bromage-Griffiths, A.

Type: Article

Published: 2008, Volume 58, Issue 5, Pages 562-589

Abstract: Level 3 details are used in fingerprint comparison by fingerprint examiners to reach a conclusion as to the identity of a person from a latent impression recovered from a crime scene. Level 3 details are usually used in a holistic way, mainly by members of the fingerprint community who are not subjected to a numerical standard rule. Although the term Level 3 detail is well known, a survey performed by the authors suggests that there is no clear consensus on the classification, reproducibility, and individual value of Level 3 details.

Comparison of Three Types of White Powder Suspensions for the Recovery of Fingerprints on Wetted Nonporous Surfaces

Author(s): NicDaeid, N.; Carter, S.; Laing, K.

Type: Article

Published: 2008, Volume 58, Issue 5, Pages 590-599

Abstract: Three white powder suspensions (Wetwop, Wet Powder, and a titanium dioxide powder formula) were tested on fingerprints that had been deposited on several nonporous surfaces, submerged in water, and then dried. The white powder suspensions performed comparably well across all surface types tested. However, the optimum powder suspension was determined to be Wetwop.

Comparison of Vacuum Metal Deposition and Powder Suspension for Recovery of Fingerprints on Wetted Nonporous Surfaces

Author(s): NicDaeid, N.; Carter, S.; Laing, K.

Type: Article

Published: 2008, Volume 58, Issue 5, Pages 600-613

Abstract: This paper reports a study comparing vacuum metal deposition and white powder suspension as techniques for the recovery of fingerprints from wetted nonporous dark substrates. Powder suspension proved to be an effective, simple-to-use, cost-effective, and quick technique. (See correction by Niamh Nic Daéid, Stephanie Carter, and Kenny Laing in JFI 59 (1).)

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2008, Volume 58, Issue 5, Page 617

Abstract: This interesting left thumb print has unusual ridge flow. This print is a PLAIN ARCH, but should be referenced to a small to medium count LEFT SLANT LOOP, should a fuller roll reveal a recurving ridge and delta on the right side. This unusual pattern was contributed by Charles Martinez, Denver Police Crime Laboratory, Denver, Colorado.

Re: Skull Features as Clues to Age, Sex, Race, and Lifestyle, J. For. Ident. 58 (2)

Author(s): Melbye, F. J.; Hamilton, M. D.

Type: Letters

Published: 2008, Volume 58, Issue 4, Pages 401-408

Quantification of the Individual Characteristics of the Human Dentition: Methodology

Author(s): Johnson, L. T.; Blinka, D. D.; VanScotter-Asbach, P.; Radmer, T. W.

Type: Technical Note

Published: 2008, Volume 58, Issue 4, Pages 409-418

Abstract: This study provides a method for comparing six individual human dentition characteristics using the standard measuring tool in Adobe Photoshop CS2 as compared to measuring individual characteristics with an automated software program under development at Marquette University, which has been adapted for bitemark analysis. The algorithm identifies color-specific pixels and automatically calculates the measurements.

Developing Latent Fingerprints on the Adhesive Side of Tape using a Freezing Technique

Author(s): Cramer, D.; Glass, K.

Type: Technical Note

Published: 2008, Volume 58, Issue 4, Pages 419-423

Abstract: Obtaining fingerprints of sufficient comparison quality from the adhesive side of tape can be a difficult, costly, and messy process. However, it can be quite valuable because it aids in the criminal investigation process. In this experiment, fingerprints were deposited on various types of tape. The tapes were then frozen and dusted with either black powder or magnetic powder. Quality results were obtained for each type of tape and powder.

Improved Results in the Development of Latent Fingerprints on Thermal Paper

Author(s): Scott, M.

Type: Technical Note

Published: 2008, Volume 58, Issue 4, Pages 424-428

Abstract: The portable hair dryer method has been used to develop latent prints on thermal paper. The application of steam during the heating process was explored and determined to further improve the results.

Latent Print Development under a Self-Adhesive Stamp

Author(s): Perez-Avila, J.

Type: Case Report

Published: 2008, Volume 58, Issue 4, Pages 429-431

Abstract: This paper discusses the use of heat to remove self-adhesive stamps from envelopes to process not only the sticky side of the stamp, but also the paper underneath the stamp.

The Development and Recovery of Identical Latent Impressions from Independent Investigations

Author(s): Ayers, K. R.

Type: Case Report

Published: 2008, Volume 58, Issue 4, Pages 432-436

Abstract: A comparison of two lifts from two CDs in different cases confirmed that the impressions were identical. An investigation revealed that the manufacturer places these finger impressions on CDs during the manufacturing process. This information may keep other agencies from spending an unnecessary amount of time following false leads.

Polygraph Testing of Subjects using Steroids

Author(s): Jaworski, R.

Type: Case Report

Published: 2008, Volume 58, Issue 4, Pages 437-452

Abstract: This article presents polygraph charts of men and women using steroid hormones (testosterone and estrogen). The tests used the Control Question Technique. The charts show that steroids do not distort human physiology, neither do they affect the perception of relevant and control questions. Additionally, the accuracy of the assumptions of the Control Question Technique in murder cases was confirmed.

New Bloodstain Measurement Process Using Microsoft Office Excel 2003 AutoShapes

Author(s): Reynolds, M.; Raymond, M. A.

Type: Article

Published: 2008, Volume 58, Issue 4, Pages 453-468

Abstract: This study presents an innovative and improved alternative to current manual bloodstain measurement methods. The study describes a new procedure for the measurement of bloodstains using Microsoft Office Excel 2003 AutoShape functions. Results show that, in addition to improved levels of measurement accuracy and precision, the use of this software in the bloodstain measurement process permits management and adjustment of the bloodstain image (e.g., cropping, resizing, magnification, and contrast and brightness modification), making the measurement process easier and thus more effective. This new procedure also generates saveable, reviewable, and auditable electronic case file data of the entire measurement process.

Bloodstain Measurement using Computer-Fitted Theoretical Ellipses: A Study in Accuracy and Precision

Author(s): Reynolds, M.; Franklin, D.; Raymond, M. A.; Dadour, I.

Type: Article

Published: 2008, Volume 58, Issue 4, Pages 469-484

Abstract: Accuracy and precision are two key measurement components. Accuracy relates to a confidence level in similarity between known and measured values, and precision relates to similarity between repeated measures of the same standard. Measurements from spattered bloodstains interpolated within a mathematical framework make it possible to determine a blood source area of origin within three-dimensional space.

Sulfur Cement: A New Material for Casting Snow Impression Evidence

Author(s): Wolfe, J.

Type: Article

Published: 2008, Volume 58, Issue 4, Pages 485-498

Abstract: Sulfur cement is a silica-filled modified sulfur mixture that exhibits physical properties which make it an excellent replacement for pure sulfur as a hot-melt casting compound for snow impression evidence. Sulfur cement is melted, cooled, and poured in the same manner as pure sulfur; however, the sulfur plasticizers and silica in the material add strength and stability to the cured cast. This not only prevents the breakage inherent in pure sulfur casts, but also allows easier casting of large snow impressions such as tiretracks and snowmobile tracks. Validation studies were performed on sulfur cement as a snow impression casting medium. The sulfur cement was shown to quickly and reliably preserve snow impressions with detail comparable to that of pure sulfur or dental stone casts.

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2008, Volume 58, Issue 4, Page 501

Abstract: This unusual fingerprint is a Central Pocket Loop Whorl with a meet tracing. The definition of a CPLW states that there must be two deltas and at least one ridge making a complete circuit in front of the delta. But "in lieu of a recurve in front of the delta in the inner pattern area, an obstruction at right angles to the line of flow will suffice" (The Science of Fingerprints). This fingerprint should be referenced to a one-count Left Slant Loop and a Tented Arch. This unusual pattern was contributed by Donald Hampton, Springfield Police Department, Springfield, Missouri.

A Digital System for Imaging Bitter Patterns

Author(s): Koenig, B. E.; Lacey, D. S.; Killion, S. A.

Type: Correction

Published: 2008, Volume 58, Issue 3, Pages 281-282

Abstract: Correction to article published in JFI 58 (2)

The Future of DNA Evidence

Author(s): Duncan, C. D.

Type: Commentary

Published: 2008, Volume 58, Issue 3, Pages 283-295

Abstract: The future of DNA as evidence is firmly set as a standard tool of criminal investigators. What is not set is the future of DNA evidence. Because of privacy concerns, the fear of "Big Brother", and legislative constraints, investigators may not ever be able to utilize DNA to its potential. Although the possibilities are nearly limitless, the criminal justice community must be aware of the possible systemwide failures that could occur.

New Method for Examining the Inside of Footwear

Author(s): Nirenberg, M.

Type: Technical Note

Published: 2008, Volume 58, Issue 3, Pages 297-304

Abstract: The inside of footwear, particularly the toe box, can be a source of evidence and reveal characteristics specific to the person who wore the footwear. Prior to separating the shoe or boot upper from its sole, it is customary to visually examine the inside of the footwear. This paper discusses the nondamaging use of a fiber-optic camera to examine the inside of a shoe in great detail, to take photos, and to create a video record of the examination.[See letter to the editor by G. Matt Johnson in JFI 59 (1).]

Recording a Known Tire Impression from a Suspect Vehicle

Author(s): Nause, L. A.; Souliere, M. P.

Type: Technical Note

Published: 2008, Volume 58, Issue 3, Pages 305-314

Abstract: The use of spray-on cooking oil, black fingerprint powder, and safety film was tried as a new method for recording tire impressions. It was found to be an easy and effective technique.

Thin-Layer Chromatography of Refilled Photocopy Toners

Author(s): Saini, K.; Saroa, J. S.

Type: Technical Note

Published: 2008, Volume 58, Issue 3, Pages 315-326

Abstract: Samples (201) of black toners (raw and processed) from 28 toner companies were analyzed by thin-layer chromatography. Different solvent systems were compared. Two systems were found most suitable for the separation of the dye components: (1) ethyl acetate:ethanol:distilled water and (2) cyclohexane:chlorobenzene:ethanol.

Forensic Hair Characterization of Six Endangered Felid Species of India

Author(s): Chandel, R. S.; Thakar, M. K.; Goyal, S. P.; Sahajpal, V.

Type: Technical Note

Published: 2008, Volume 58, Issue 3, Pages 327-341

Abstract: Hair is one of the most commonly encountered types of physical evidence in both poaching and illegal trading cases of wild animals. In the present study, guard hairs of six highly endangered and protected felid species of India were studied with light microscopy. Morphological characteristics (i.e., length, thickness, cuticle scale pattern, medulla pattern, medulla index, cross-section, and cortical pigment distribution) were analyzed. Some species-specific morphological characteristics have been identified and discussed that could be used in the identification and differentiation of these species. Light microscopic methods are simple and economical, as well as reliable. They can be performed in the majority of forensic science laboratories where costly methods, such as electron microscopy and DNA typing, are not available.

Pitfalls in Dental Identification: Italian Cases

Author(s): Santoro, V.; Introna, F.

Type: Case Report

Published: 2008, Volume 58, Issue 3, Pages 342-354

Abstract: The authors describe eight cases of attempted identification of unknown persons with the use of dental records. In each case, it was impossible to compare the data obtained by examination of the cadavers with antemortem records. This was due to the absence or poor quality of dental records.

Deposition of Bloody Friction Ridge Impressions

Author(s): Langenburg, G. M.

Type: Article

Published: 2008, Volume 58, Issue 3, Pages 355-389

Abstract: To date, no experiments have been published measuring the cause and effect relationship of various deposition factors and the resultant appearance of the ridge detail in a bloody friction ridge impression. This study reports the effects of deposition pressure (at four categories of pressure: light, medium, heavy, and extreme), the effects of increasing volumes of human blood loaded onto a finger (from 10 μ L to 100 μ L), the effects of depositing impressions on a horizontal surface versus a vertical surface, and finally, the effects of allowing the blood to dry on the finger for a significant amount of time before depositing the impression (hereafter: predeposition waiting interval or PWI). Prior to testing these variables, a series of study design tests were also performed to optimize the conditions of the study. During these tests, we examined several other factors (such as the temperature of the blood, the ambient air temperature, the temperature of the skin) for their contribution to the appearance of the bloody impressions.

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2008, Volume 58, Issue 3, Page 397

Abstract: The fingerprint pattern shown is classified as a DOUBLE LOOP WHORL with a "meet" tracing. Since the upright loop may possibly be spoiled by an appendage, the pattern is referenced to an Accidental Whorl (loop over a tented arch). This interesting pattern was contributed many years ago by Detective John P. Donahue, Jr., Police Department, Cherry Hill, New Jersey.

Re: The Commentary "Crime Reconstruction" J. For. Ident. 57 (6), 797-806

Author(s): Turvey, B. E.; Chisum, W. J.

Type: Letters

Published: 2008, Volume 58, Issue 2, Pages 133-155

Error Rates in Forensic Science

Author(s): Morris, K.

Type: Commentary

Published: 2008, Volume 58, Issue 2, Pages 157-171

Skull Features as Clues to Age, Sex, Race, and Lifestyle

Author(s): Naccarato, S.; Petersen, S.; John, G. L.

Type: Case Report

Published: 2008, Volume 58, Issue 2, Pages 172-181

Abstract: This is a basic review of the valuable clues relating to the age, race, sex, or even lifestyle of a particular deceased individual that can be obtained through the proper analyses of unique dental soft tissue and hard tissue structures of the dentition and skull. (See letter to the editor by F. J. Melbye and M.D. Hamilton in JFI 58 (4).)

Modifications to the 1,2-Indanedione/Zinc Chloride Formula for Latent Print Development

Author(s): Russell, S. E.; John, G. L.; Naccarato, S.

Type: Technical Note

Published: 2008, Volume 58, Issue 2, Pages 182-192

Abstract: Recently, Australian researchers discovered that combining a 1,2-indanedione formulation with a zinc chloride solution improved the visualization of latent fingerprints on paper and other porous surfaces. In this study, three modifications to this indanedione-zinc formula and protocol were explored. Increasing the amount of zinc chloride in the final working solution, dipping the material in the solution a second time, and lengthening the heating time have each enhanced both the color and the fluorescence of fingerprints developed on paper. By employing all of these alterations, optimal visualizations of latent prints were achieved.

The Use of Infrared Rays for Identification Purposes

Author(s): Donno, A.; Carlucci, D.; Introna, F

Type: Technical Note

Published: 2008, Volume 58, Issue 2, Pages 193-202

Abstract: Photographic techniques using infrared rays are widely used in the medicolegal field [1-4]. They are particularly helpful in personal identification investigations [5] because they reveal skin marks (e.g., tattoos) that cannot be seen with the naked eye or in simple color photos. The equipment used, although apparently sophisticated, is in fact easy to manage and has been shown to be decisive in many medicolegal consultations.

Evaluation of the Fingerprint Reagent Oil Red O as a Possible Replacement for Physical Developer

Author(s): Salama, J.; Aumeer-Donovan, S.; Lennard, C.; Roux, C.

Type: Article

Published: 2008, Volume 58, Issue 2, Pages 203-237

Abstract: This study further evaluates a relatively new fingerprint reagent, Oil Red O (ORO), for its potential to be used as a replacement for, or in sequence with, physical developer (PD). A preliminary evaluation of the existing ORO reagent on a number of different porous substrates produced fingerprints with excellent ridge detail and contrast. Attempts were made to reformulate the ORO reagent to improve its application. During these

trials, sodium hydroxide was found to be an essential component of the reagent. None of the reformulated ORO reagents developed fingermarks as well as the existing ORO formulation. A comparison of fingermarks developed with ORO and PD on a variety of different porous surfaces indicated that ORO performance appeared to be compromised to a greater extent than PD by the age of the fingermark and the immersion time in water. ORO produced inferior results to PD on fingermarks older than approximately 4 weeks. ORO produced good-quality fingermarks when placed in sequence with PD and HFE-7100/HFC-4310mee formulations of DFO, ninhydrin (followed by secondary metal salt treatment with zinc), and 1,2-indandione-zinc. Selectivity studies revealed that ORO interacts with a wide variety of both water-soluble and water-insoluble compounds that may be present in latent fingermark deposits.

A Digital System for Imaging Bitter Patterns

Author(s): Koenig, B. E.; Lacey, D. S.; Killion, S. A.

Type: Article

Published: 2008, Volume 58, Issue 2, Pages 238-264

Abstract: This article explains the use of Bitter (ferrofluid development) patterns, lists the components of the authors' present film-based macrophotography system and protocol, provides and discusses the specifications for a digital imaging system, lists the components and protocol of the new digital system, describes image enhancement through post-processing, and makes specific forensic recommendations regarding its use. Bitter patterns are commonly used in audio duplication, enhancement, authenticity, and voice comparison examinations of analog tapes. Though this article is concerned with Bitter pattern imaging, most of the information is applicable to macroimaging systems in other forensic disciplines. (See correction in JFI 58 (3).)

Direct Detection of Gunshot Residue on Target: Fine Lead Cloud Deposit

Author(s): De Forest, P. R.; Rourke, L.; Sargeant, M.; Pizzola, P. A.

Type: Article

Published: 2008, Volume 58, Issue 2, Pages 265-276

Abstract: The estimate of the muzzle-to-target distance is critical to crime scene reconstruction because it can either help to corroborate or to refute suspects' or witnesses' statements. Methods currently used in criminalistics laboratories for the estimate of the muzzle-to-target distance have changed little over the past sixty years. These methods employ transfer techniques rather than a direct pattern development and visualization approach because color reactions do not provide an adequate contrast with dark fabrics. These methods suffer from several weaknesses. Described herein is the research and development of a simple method that allows the detection of the fine lead cloud deposit, originating from a firearm discharge, directly on the target.

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2008, Volume 58, Issue 2, Page 278

Abstract: This interesting latent fingerprint was located on a stolen vehicle. A search through the Chautauqua Region SAFIS terminal resulted in a hit to a known fingerprint that revealed a striking resemblance to the famous painting, "The Scream" by Norwegian artist Edward Munch and to the mask worn in the movie, "Scream". The identification and prosecution were very timely and commenced the week before Halloween 2007. Contributor: Sergeant Michael Williams, Senior Crime Scene Analyst and SAFIS Manager, Chautauqua County Sheriff's Office, New York.

Commentary

Author(s): McKasson, S.

Type: Commentary

Published: 2008, Volume 58, Issue 1, Page 1

Discriminability of Fingerprints of Twins

Author(s): Srihari, S. N.; Srinivasan, H.; Fang, G.

Type: Article

Published: 2008, Volume 58, Issue 1, Pages 109-127

Abstract: A study of the discriminability of fingerprints of twins is presented. The fingerprint data used is of high quality and quantity because of a predominantly young subject population of 298 pairs of twins whose tenprints were captured using a livescan device. Discriminability using level 1 and level 2 features is independently reported. The level 1 study was to visually classify by humans each fingerprint into one of six categories (right loop, left loop, whorl, arch, twin loop, and tented arch). It was found that twins are much more likely (55%) to have the same level 1 classification when compared to the general population (32%). The level 2 study was to compare minutiae (ridge endings and bifurcations). This was done by a minutiae-based automatic fingerprint identification algorithm that provided a score (0-350) given a pair of fingerprints. Scores were computed for corresponding fingers from both twins and non-twins. Five distributions of scores were determined: twins, non-twins, identical twins, fraternal twins, and genuine scores from the same finger. Using the Kolmogorov-Smirnov test to compare distributions, the following inferences are made: twins are different from genuines, twins are different from non-twins, and identical twins are the same as fraternal twins. The main conclusion is that, although the patterns of minutiae among twins are more similar than in the general population, they are still discriminable.

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2008, Volume 58, Issue 1, Page 130

Abstract: This is a very unusual palmprint. The contributor correctly suggests the following questions arise when observing this image: Which side is the thenar and which is the hypothenar? Where are the regular creases? Does this palmprint originate from the left or right palm? This person's right hand is completely normal with five fingers and a full palm, but the left hand has a genetic defect, bearing only two fingers and the thumb and, as you can see, this unusual ridge flow. Contributor: Lieutenant József Romanek, Colonel of Police, Justice Institute of Forensic Sciences, Hungary.

Forensic Mapping: The Use of Total Stations and Mapping Software to Produce Scale Diagrams

Author(s): Joice, B.

Type: Technical Note

Published: 2008, Volume 58, Issue 1, Pages 15-26

Abstract: Total stations and mapping software are being utilized more and more by law enforcement agencies to collect and produce highly accurate scale diagrams for court. This paper describes what a total station is, how it collects measurement data, and how that data is ultimately used to produce a scale diagram. Also discussed is

how the investigator can meet court challenges in order to have the scale diagram and associated data entered as evidence.

Re: A Study of Numeracy in Forensic Scientists, J. For. Ident. Vol 57 (5)

Author(s): McKasson, S.

Type: Letters

Published: 2008, Volume 58, Issue 1, Pages 2-5

The Restoration of Impressed Characters on Aluminum Alloy Motorcycle Frames

Author(s): Peeler, G.; Gutowski, S. J.; Wrobel, H.; Dower, G.

Type: Technical Note

Published: 2008, Volume 58, Issue 1, Pages 27-32

Abstract: This paper discusses a procedure to restore impressed characters on aluminum alloy motorcycle frames. The procedure involves the initial use of an acid etchant followed by the application of an alkali. This procedure is repeated as necessary. The method was used with good results during experimental tests and on several stolen motor cycles received in casework.

Identification through Typing of DNA Recovered from Touch Transfer Evidence: Parameters Affecting Yield of Recovered Human DNA

Author(s): Allen, R. W.; Pogemiller, J.; Joslin, J.; Melisa, G.; Pritchard, J.

Type: Technical Note

Published: 2008, Volume 58, Issue 1, Pages 33-41

Abstract: Parameters affecting the recovery of human chromosomal DNA from touched evidence suitable for subsequent DNA typing was investigated. A model system was devised in which approximately equal numbers of male and female volunteers created a touch impression on clean glass slides with either the thumb or forefinger. Material deposited on the slide was then lifted using a Dacron swab wetted with dilute buffer solution and then subjected to extraction and quantitation of the DNA recovered. Chromosomal DNA present on each slide was quantitated using a sensitive, human-specific assay. Individuals providing touched slides for the study were categorized as heavy, intermediate, and light shedders, depending upon the amount of DNA recovered from their glass slides. Results showed that male donors were more often classified as heavy shedders (26%) when compared with female donors (12.5%), who tended to be classified as intermediate shedders (66.7%). In both sexes, only about 20% of donors were classified as light shedders. When items touched with the forefinger or thumb from the dominant versus nondominant hand from both sexes were compared, the nondominant hand deposited significantly more DNA on glass slides than did the dominant hand. Different types of mock forensic evidence, including knives, guns, and bullet casings, were found to serve as suitable substrates for the recovery of DNA when handled by heavy or intermediate shedders. Interestingly, DNA deposited on bullets handled during the loading of 22 and 9 mm caliber handguns survived firing of the weapons and could be recovered for STR analysis.

Two Cases with the Same Latent Print Evidence

Author(s): Hill, S.

Type: Case Report

Published: 2008, Volume 58, Issue 1, Pages 42-45

Abstract: The latent print examiner discovered that the latent print evidence in two cases, which were investigated days apart, were the same impressions.

Latent Print Examination on Foldable and Porous Surfaces: Analysis of Three Cases

Author(s): Zampa, F.; Cappiello, P.; Vaccaro, G.; Carullo, V.; Cervelli, F.; Mattei, A.; Garofano, L.

Type: Case Report

Published: 2008, Volume 58, Issue 1, Pages 46-53

Abstract: The results of three interesting and unusual cases involving fingerprint examinations are presented. This paper points out the extreme usefulness of a careful analysis of the developed friction ridge skin impression with respect to the surface of the item in question.

Recovery of Fingerprints from Arson Scenes: Part 1 — Latent Fingerprints

Author(s): Bradshaw, G.; Bleay, S.; Deans, J.; NicDaeid, N.

Type: Article

Published: 2008, Volume 58, Issue 1, Pages 54-82

Abstract: This paper reports a study into the recovery of fingerprints from fire scenes. The work aims to establish the range of temperatures and exposure times for which latent fingerprints can survive exposure and the best practice for soot removal and subsequent fingerprint development. Tests carried out in a laboratory demonstrated that several current fingerprint development processes continue to develop marks after prolonged exposure of the print at 200 °C. Above this temperature, marks can still be developed, but the choice of processes is much more limited. Articles were also subjected to simulated fire environments and it was further demonstrated that a range of soot removal processes could be successfully applied and marks subsequently developed. The best performing soot removal techniques included lifting tape, silicone casting compound, and Absorene. For development of marks on nonporous surfaces, black powder suspension was particularly effective, whereas the best technique for porous surfaces was physical developer.

"Subjective" – The Misused Word

Author(s): Leo, W. F.

Type: Commentary

Published: 2008, Volume 58, Issue 1, Pages 6-13

Recovery of Fingerprints from Arson Scenes: Part 2 — Fingerprints in Blood

Author(s): Moore, J.; Bleay, S.; Deans, J.; NicDaeid, N.

Type: Article

Published: 2008, Volume 58, Issue 1, Pages 83-108

Abstract: This paper reports a study into the recovery of fingerprints in blood from fire scenes. The work aims to establish the range of temperatures and exposure times for which fingerprints in blood can survive exposure and the best practice for soot removal and subsequent fingerprint development. Tests carried out in a laboratory demonstrated that some of the protein dyes currently recommended for development of fingerprints in blood continue to develop marks after prolonged exposure of the print to 200 °C. Above this temperature, marks can still be developed, but it is not possible to determine whether the original mark was in blood. Articles were also subjected to simulated fire environments, and it was further demonstrated that a range of soot removal

processes could be successfully applied and marks subsequently developed. The best performing soot removal techniques included silicone rubber casting compound and Absorene. For development of marks on nonporous surfaces, acid violet 17 was most effective, whereas the best technique for porous surfaces was acid black 1. Vacuum metal deposition was capable of detecting the position of marks on surfaces exposed to 900 °C.

Crime Reconstruction

Author(s): Gardner, R. M.

Type: Commentary

Published: 2007, Volume 57, Issue 6, Pages 797-806

Abstract: (See Letter to the editor by Brent E. Turvey and W. Jerry Chisum in JFI 58 (2))

Characteristics of Snow and Their Influence on Casting Methods for Impression Evidence

Author(s): Adair, T. W.; Tewes, R.; Bellinger, T. R.; Nicholls, T.

Type: Technical Note

Published: 2007, Volume 57, Issue 6, Pages 807-822

Abstract: Casting impression evidence in snow can be challenging for many investigators. Understanding the medium of snow and how its properties may influence the success of casting methods can assist the investigator in choosing techniques that offer the best chances of successfully casting track impressions. Various snow types are defined with recommendations for the appropriate casting methods best suited for the characteristics of the snowpack. The terms "impression perimeter" and "penetration" are introduced as they relate to snow casting.

The Dry-Casting Method: A Reintroduction to a Simple Method for Casting Snow Impressions

Author(s): Adair, T. W.; Shaw, R.

Type: Technical Note

Published: 2007, Volume 57, Issue 6, Pages 823-831

Abstract: We report on a method of casting snow impressions with dental stone that produces impressive results with minimal effort. Although variations of this method have been reported as early as 1932, the technique seems to have been overlooked in contemporary forensic texts. Many investigators are dependent on snow print wax and dental stone for casting impression evidence in snow. This method adds yet another option for the crime scene investigator to consider. We introduce the term "dry casting" and provide simple steps for using this casting method.

Positive Identification on the Basis of Dental Work in a Burned Body

Author(s): Santoro, V.; Introna, F.

Type: Case Report

Published: 2007, Volume 57, Issue 6, Pages 832-840

Abstract: This paper deals with a positive identification on the basis of the dental work of the burned body of a young woman who died in a car crash.

Use of Photoshop in Augmenting Software Composite Construction

Author(s): Levi, J. A.; Chaikovsky, A.

Type: Technical Note

Published: 2007, Volume 57, Issue 6, Pages 841-847

Abstract: When facial composite construction is required, software tools are commonly used. This paper describes how to use Adobe Photoshop to make corrections and additions to software-generated composites.

Microsoft Word Crime Scene Drawing

Author(s): Lamarche, S.

Type: Technical Note

Published: 2007, Volume 57, Issue 6, Pages 848-869

Abstract: Microsoft Word is not generally considered to be a graphics program. However, by using the Drawing toolbar, Microsoft Word can be used to make accurate (to scale) drawings. This method has been used successfully to prepare drawings for use in court. Additionally, a drawing may be used as an addendum to a witness statement, allowing witnesses to draw on printed copies of the diagram to indicate position and direction relative to themselves, suspects, and victims. These diagrams can be drawn quickly, if not to scale, and used during an investigation, much in the same way as the scale diagram would be used in the courtroom.

The Case of the Toe Print

Author(s): Watkins, D.; Brown, K. C.

Type: Case Report

Published: 2007, Volume 57, Issue 6, Pages 870-873

Abstract: During an investigation of check fraud involving 5 victims and 34 counterfeit checks totaling \$67,245.00, it was noted that a very large fingerprint had been placed on the front of several checks. The investigation revealed that the large fingerprint was actually a toe print that had been purposely placed there to mislead any investigation.

Focus on Pores

Author(s): Turner, J. M.; Weightman, A. S.

Type: Case Report

Published: 2007, Volume 57, Issue 6, Pages 874-882

Abstract: Gauging quantity and quality of detail in a fingerprint is a central part of the identification process. It is imperative that an examiner be aware of and be able to identify all features of a mark to assist in an identification. Although pores have often been sidelined as being unreliably reproduced, they can be a useful tool to assist in comparative ridgeology. This case study is an excellent example of how useful pores can be when there are insufficient traditional points of comparison to individualize.

Commercial Woodchipper Fatality

Author(s): Beers, D. A.; Allen, P. C.

Type: Case Report

Published: 2007, Volume 57, Issue 6, Pages 883-890

Abstract: This paper discusses collecting, sorting, cataloging, and identifying the remains of a person killed in a woodchipper incident. Also, the manner of death is determined to be an accident.

Theoretical and Practical Considerations in Crime Scene Reconstruction

Author(s): Gardner, R. M.; Bevel, T.

Type: Article

Published: 2007, Volume 57, Issue 6, Pages 891-911

Abstract: Crime scene reconstruction is a distinct discipline in forensics, with a relatively well-established history defining basic methodologies. What has not been articulated well in the past is a basic theory and underlying principles for crime scene reconstruction. This paper examines the history of crime scene reconstruction in an effort to identify basic concepts associated with those methodologies. It identifies an applicable theory and four associated principles that will guide the crime scene analyst and then provides a practical seven-step methodology to use when conducting a reconstruction.

Guide for the Forensic Documentation and Photography of Footwear and Tire Impressions at the Crime Scene

Author(s): SWGTREAD

Type: Special Feature

Published: 2007, Volume 57, Issue 6, Pages 912-917

Guide for Casting Footwear and Tire Impression Evidence

Author(s): SWGTREAD

Type: Special Feature

Published: 2007, Volume 57, Issue 6, Pages 918-924

Guide for Lifting Footwear and Tire Impression Evidence

Author(s): SWGTREAD

Type: Special Feature

Published: 2007, Volume 57, Issue 6, Pages 925-929

Photoshop CS3 for Forensics Professionals, A Complete Digital Imaging Course for Investigators

Author(s): Wertheim, K.; Langenburg, G. M.; Moenssens, A.

Type: Book Review

Published: 2007, Volume 57, Issue 6, Pages 930-931

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2007, Volume 57, Issue 6, Page 966

Abstract: This is an unusual print. Below are the rolled and plain impressions of the #1/right thumb print. The third delta on the top left is certainly unusual and may not always be visible in a rolled or latent impression. A latent impression of this print could cause many headaches when determining location and orientation! Because there are three deltas, this print is classified as an ACCIDENTAL Whorl. Since the third delta may not always be visible, a reference to a Plain Whorl is required. The thumb print appears to be fully rolled, but the tracing cannot be done from the left to the right delta; therefore, this would be given the opposite finger tracing, which is an Outer, and referenced to an Inner and Meeting. Contributor: Tammy Leiter, Chandler Police Department, Chandler, Arizona

Effect of Photographic Technology on Quality of Examination of Footwear Impressions

Author(s): Blitzer, H.; Hammer, R.; Jacobia, J.

Type: Technical Note

Published: 2007, Volume 57, Issue 5, Pages 641-657

Abstract: Using a panel of footwear examiners and photographs produced by both film and digital technologies, it was shown that properly chosen digital technology can give results comparable to those of 35 mm silver halide. Prints produced from 120 film are better than either 35 mm or digital.

Enhancement of Difficult-to-Capture, Two-Dimensional Footwear Impressions Using the Combined Effects of Overhead Lighting and the Perspective Control Lens

Author(s): Chung, J. W.

Type: Technical Note

Published: 2007, Volume 57, Issue 5, Pages 658-671

Abstract: This paper discusses an enhancement method that uses the perspective control lens for the recording of difficult-to-capture, two-dimensional footwear impressions. The results show that such two-dimensional impressions can be enhanced and photographed with overhead lighting through the use of a perspective control lens.

A Study of Numeracy in Forensic Scientists

Author(s): Houck, M. M.

Type: Technical Note

Published: 2007, Volume 57, Issue 5, Pages 672-680

Abstract: A study was conducted with forensic experts using standard tests of frequency assessment and number handling to judge their abilities to estimate problem solving capacities. The experts fared no better than

other professions; in some ways, they did worse. Given the prevalence of statistics in the courtroom, a greater emphasis on enhancing numerical literacy teaching statistics may be necessary in the forensic sciences. (See letter to the editor by Stephen McKasson in JFI 58 (1).)

Fingerprint Detection and DNA Typing on Objects Recovered from Water

Author(s): Soltyszewski, I.; Moszczynski, J.; Pepinski, W.; Jastrzebowska, S.; Makulec, W.; Zbiec, R.; Janica, J.

Type: Technical Note

Published: 2007, Volume 57, Issue 5, Pages 681-687

Abstract: The purpose of this study was to evaluate the effect of a water environment on fingerprint development and DNA typing. Fingerprints deposited on glass slides were examined. The experiments were conducted with four different types of water at two temperature conditions. Fingerprint development methods included aluminum powder, ferromagnetic powder, and cyanoacrylate fuming. An AmpFISTR SGM Plus and ABI 310 Genetic Analyzer or ABI 377 Sequencer were used to obtain DNA profiles. Fingerprints, but no DNA profiles, were recovered from objects that had been submerged in water for up to six weeks.

The Use of Un-du to Separate Adhesive Materials

Author(s): Molina, D.

Type: Technical Note

Published: 2007, Volume 57, Issue 5, Pages 688-696

Abstract: The use of gentian violet, Sticky-side Powder, and Wetwop following the application of Un-du to separate adhesive materials is tested. The test results indicate that Un-du is effective in separating the tape so that it can be processed for fingerprints.

Forensic Analysis of Some Lip Cosmetics

Author(s): Thakar, M. K.; Singh, R.; Singh, R.; Shelja; Kumar, A.

Type: Technical Note

Published: 2007, Volume 57, Issue 5, Pages 697-705

Abstract: Stains of lip cosmetics are commonly encountered in crimes involving rape, burglary, anonymous letters, and so forth. If these stains are analyzed properly, they can provide significant evidence. Thin-layer chromatography, which is relatively simple and inexpensive, can be successfully employed to analyze these types of stains. This study deals with the thin-layer chromatography analysis of various types of lip cosmetics.

The Recovery of Footwear Marks in Blood at a Homicide Scene Involving a Smoldering Fire

Author(s): Gorn, M.; Stafford-Allen, P.; Stevenson, J.; White, P.

Type: Case Report

Published: 2007, Volume 57, Issue 5, Pages 706-716

Abstract: A research project was undertaken to determine the specificity of leucocrystal violet, a blood enhancement reagent. The results became important in assessing whether nonvisible marks found at a homicide scene were made in blood or could have been made in another fluid.

Cadaver Dogs as a Forensic Tool: An Analysis of Prior Studies

Author(s): Dorriety, J. K.

Type: Article

Published: 2007, Volume 57, Issue 5, Pages 717-725

Abstract: This paper discusses studies involving cadaver dog training and cadaver dog accuracy and also discuss the value of using the cadaver dog as a forensic tool.

What Knots Can Reveal: The Strengths and Limitations of Forensic Knot Analysis

Author(s): Chisnall, R.

Type: Article

Published: 2007, Volume 57, Issue 5, Pages 726-749

Abstract: The analysis of knot evidence can be valuable in civil and criminal investigations. In some instances, knots and knot combinations can be used to distinguish between homicide, suicide, and autoerotic fatalities. In others, knots can indicate the number of tiers and even suggest their handedness. Knot analysis is not a mainstream technique. There is little supporting research, there are discrepancies in the knotting literature regarding nomenclature, there are no globally accepted standards for knot experts, and the general strengths and limitations of forensic knot analysis have not been extensively conveyed. The latter issue is the purpose of this article. Properly preserved and prudently analyzed knot evidence may offer some corroborating details, suggest leads to new sources of evidence, and provide grounds for search warrants and other legal or scientific aspects of investigation.

Criminalistics, An Introduction to Forensic Science

Author(s): Cantu, A. A.

Type: Book Review

Published: 2007, Volume 57, Issue 5, Pages 750-751

Forensic DNA Evidence Interpretation

Author(s): Miller, R. V.

Type: Book Review

Published: 2007, Volume 57, Issue 5, Pages 752-754

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2007, Volume 57, Issue 5, Page 794

Abstract: This is just for fun, in honor of Patriot Day, September 11! The core area of the fingerprint resembles the picture of George Washington on the one dollar bill!!! The contributor noticed it while conducting IAFIS

searches. I would classify this as a GWW - George Washington Whorl! Contributor: James L. Rettberg III, FBI Latent Print Unit/TEDAC/ORAU, Quantico, Virginia.

Infant-to-Adult Footprint Identification

Author(s): Sinclair, R.; Fox, C.

Type: Case Report

Published: 2007, Volume 57, Issue 4, Pages 485-492

Abstract: A case report involving the examination of an infant footprint against an adult exemplar to establish citizenship in the United States is presented. The size differential was eliminated through the use of enlarged ridge tracings which were used to demonstrate the comparison.

Image Enhancement and Adobe Photoshop: Using Calculations to Extract Image Detail

Author(s): Smith, J.; York Regional Police; Newmarket, O. C.

Type: Technical Note

Published: 2007, Volume 57, Issue 4, Pages 493-505

Abstract: Adobe Photoshop's calculations function is a powerful enhancement tool to clarify detail while reducing distracting background patterns.

Extracting File Information from Digital Cameras Using JHead and Photo Studio Software

Author(s): Morris, K.; Fitzsimmons, R.

Type: Technical Note

Published: 2007, Volume 57, Issue 4, Pages 506-511

Abstract: This article discusses the functions of the software programs JHead and Photo Studio to view data contained within the exchangeable image file format (Exif). Extracted data can be useful in the establishment of the chain of custody for digital crime scene images taken at a crime and as an investigative tool in determining the origin of images in criminal investigations.

The Fentanyl Patch at the Crime Scene

Author(s): Lounsbury, D. A.; George, D. J.

Type: Technical Note

Published: 2007, Volume 57, Issue 4, Pages 512-521

Abstract: The fentanyl transdermal patch is widely prescribed for the relief of moderate to severe pain. These patches have high abuse potential and can become convenient instruments for suicide or homicide. Even after continuous use for 72 hours, patches can contain significant and potentially lethal quantities of fentanyl. When fentanyl patches are encountered at crime scenes, the circumstances of their presence should be thoroughly investigated. Particular attention should be given to the preservation of fingerprint evidence on the patch itself and its packaging materials.

Preliminary Investigations into Using Eugenol to Recover Erased Characters on Polymers

Author(s): Burke, K.; Lewis, S. W.; Bett, J.; Southurst, T. E.; Lim, K. F.; Gutowski, S. J.

Type: Technical Note

Published: 2007, Volume 57, Issue 4, Pages 522-529

Abstract: In this paper we present our preliminary studies on the efficacy of eugenol for the recovery of erased characters on polymers. We have found that eugenol rapidly recovers erased characters when applied to the surface of polymer substrates. By applying eugenol to the surface to be treated using a cotton bud or paintbrush, we were able to revisualize erased characters from a range of polymers, including acrylonitrile butadiene styrene, acrylic, high-impact polystyrene, and polystyrene. Eugenol is a safe, nonhazardous, and easily sourced reagent for this purpose.

Stabilizing Blood Samples Using Osmolytes for Forensic DNA Analysis

Author(s): Hill, A.; Van der Veer de Bondt, A.; Reeder, D.; Coticone, S.

Type: Technical Note

Published: 2007, Volume 57, Issue 4, Pages 530-538

Abstract: Forensic evidence must be stored such that its integrity is maintained while criminal and judicial proceedings continue. Presently, most liquid blood samples are dried on filter paper and stored frozen until DNA analysis is requested. The cost to maintain freezer space is substantial and if effective preservatives could be added to the blood, then the cost to store the evidence at room temperature would be reduced. In the present study, blood samples were exposed to several different environments to determine the effect of osmolytes on the preservation of DNA extracted from resulting bloodstains. To assess the ability of osmolytes to improve the storage of blood and blood stains, two osmolytes, sorbitol and trehalose, were incubated with blood samples for various time periods and extreme conditions (e.g., high temperature). DNA extracted from these samples was analyzed using yield gels followed by STR analysis. Quantiblot results showed that DNA recovery was comparable among the osmolyte-treated samples and the untreated samples. Moreover, DNA recovered from the 10% or 20% trehalose-containing blood samples were the least degraded after four months under the various conditions, as shown by yield gel assays and by STR amplification.

A Latent Print Examiner's Guide to IAFIS

Author(s): Brown, J. P.

Type: Technical Note

Published: 2007, Volume 57, Issue 4, Pages 539-549

Abstract: Research was conducted on the integrated automated fingerprint identification system (IAFIS) to determine the optimum encoding strategies for latent fingerprint searches of IAFIS. The research looked at the tenprint database, as well as the results of searches. Research showed that although IAFIS is an accurate system, some areas can cause problems for examiners. Knowing these problems and using an encoding strategy that relies on the strengths of the system, while minimizing its weaknesses, will result in a more accurate search.

The Use of Oil Red O in Sequence with Other Methods of Fingerprint Development

Author(s): Guigui, K.; Beaudoin, A.

Type: Article

Published: 2007, Volume 57, Issue 4, Pages 550-581

Abstract: Oil Red O (ORO) has been proven to be equal to or better than physical developer for the recovery of latent fingerprints on white, kraft, and thermal papers that have been wet. To extend these findings, we investigated whether ORO interferes with or improves results when used in sequence with other methods. Our results indicate that on its own, ORO gives excellent quality fingerprints, and further development is often unnecessary. However, if physical developer is needed, it can still be used as a final procedure in the sequence without being influenced by the insertion of ORO.

Audio Record and Playback Characteristics of Small Solid-State Recorders

Author(s): Koenig, B. E.; Lacey, D. S.

Type: Article

Published: 2007, Volume 57, Issue 4, Pages 582-598

Abstract: Using ten small solid-state (flash memory) audio recorders in a research project, test recordings were prepared of sine waves, white noise, and speech samples. The frequency responses, signal-to-noise ratios, sampling frequency variances, intermodulation distortion, and spectrographic vocal resonances were determined and compared for the analog outputs and also for the digital files on the five units containing USB outputs. The results of the research and their applications in forensic examinations, including authenticity, enhancement, voice comparison, and signal analysis, are discussed.

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2007, Volume 57, Issue 4, Page 638

Abstract: I often receive submissions of fingerprints with scars. When an injury penetrates both the epidermis and dermis layers of skin, a permanent scar will result. The injury/healing process causes the ridges to be pulled inward. A scar in a recorded fingerprint is identified by a white "line" running through the print. The ridges around the white line will be slightly puckered or bent (a white line with no puckering is a crease). The result of the healed wound runs the gamut from a slightly distorted pattern to a pattern so damaged that classification is impossible (the opposite finger pattern is then used for Henry Classification). Below are examples of scarred fingerprints, where the general pattern type can be determined with reasonable accuracy. Fingerprint A has a heavy scar running down the middle of the print, but it's still possible to see that left of the scar is a Whorl. Fingerprint B is also a Whorl. (Tracings on A and B would be referenced to all possibilities.) Fingerprint C has a thick scar, but again, the pattern is undamaged to the right of the scar, revealing a right slant loop, which should be referenced to a Whorl. Watch for scars – they can create very interesting patterns! Contributors: Kimberly Anderson, Abilene Police Department, Abilene, TX; Jim Richbourg, Pensacola Police Dept., Pensacola, Florida.

Alternative Metal Processes for Vacuum Metal Deposition

Author(s): Philipson, D.; Bleay, S.

Type: Correction

Published: 2007, Volume 57, Issue 3, Page 329

Abstract: On page 263 in the March/April 2007 issue of the Journal of Forensic Identification (volume 57, issue 2), figure 2 was inadvertently printed upside down. The printer and editor apologize for this error.

Re: Internet Study of Use and Effectiveness of Facial Composites in the United States, J. For. Ident. Vol 57 (1)

Author(s): Powers, B.

Type: Letters

Published: 2007, Volume 57, Issue 3, Pages 330-332

Re: Use of Dichloromethane in Fingerprint Reagent Formulations

Author(s): Stoilovic, M.; Lennard, C.; Wallace-Kunkel, C.; Roux, C.

Type: Letters

Published: 2007, Volume 57, Issue 3, Pages 333-334

Bodies of Knowledge

Author(s): Vanderkolk, J.

Type: Commentary

Published: 2007, Volume 57, Issue 3, Pages 335-337

Analyzing Pre- and Post-Event Surveillance Video Frames

Author(s): Brunetti, J.

Type: Technical Note

Published: 2007, Volume 57, Issue 3, Pages 338-347

Abstract: Surveillance video is a rich source of information for the criminal investigator. By using video frames from before and after an incident and specific filters in Corel Photo-Paint X3 and Adobe Photoshop CS, it is possible to determine areas of a crime scene where physical changes have taken place.

Using a Photographic Grid for the Documentation of Bloodstain Patterns at a Crime Scene

Author(s): Hill, T. S.

Type: Technical Note

Published: 2007, Volume 57, Issue 3, Pages 348-357

Abstract: A basic way to accomplish the documentation of bloodstain evidence is with the use of a photographic grid pattern. The grid pattern can be applied to floors, walls, or ceilings. This method can be employed by the experienced analyst as well as by a novice crime scene photographer who has no knowledge of bloodstain pattern analysis.

The Boiling Technique: A Method for Obtaining Quality Postmortem Impressions from Deteriorating Friction Ridge Skin

Author(s): Uhle, A. J.; Leas, R. L.

Type: Technical Note

Published: 2007, Volume 57, Issue 3, Pages 358-369

Abstract: When friction ridge skin is compromised by various destructive influences, it often breaks down into flaccid skin with no discernible friction ridge detail. The boiling technique is a specialized procedure that uses boiling water to recondition friction ridge skin. This reconditioning process rehydrates the skin, enhancing and exposing friction ridge detail. As a result, quality impressions, even from the most distressed bodies, can be recorded and compared to a known antemortem standard or searched through an automated fingerprint or palmprint system to verify or establish identity.

Solving the Puzzle: Joining Separated Latent Fingerprint Parts into One Whole Print for an AFIS Search.

Author(s): Argaman, U.; Chaikovsky, A.; Balman, A.; Mizrachi, N.

Type: Technical Note

Published: 2007, Volume 57, Issue 3, Pages 370-4377

Abstract: Latent fingerprints that are developed on folded plasticbags, folded papers, or similar surfaces usually present a challenge to fingerprint comparison experts, because often, the latent fingerprint is on the surface in several separate parts. Just like separated puzzle parts, there is no continuity between the pieces. This report explains a method to rejoin these separated parts and its value for AFIS searches. The presented method solves the problem of segmented latent prints by using digital imaging and by creating different image layers with Adobe Photoshop.

A Modified Iodine-Fuming Method

Author(s): Siegel, S. D.

Type: Technical Note

Published: 2007, Volume 57, Issue 3, Pages 378-382

Abstract: This paper describes a simple method of impregnating silica gel packs with iodine fumes. These silica gel packs can then be used as a part of a convenient method to fume evidence in a ziplock bag.

Barefoot Morphology Comparisons: A Summary

Author(s): Kennedy, R. B.; Yamashita, B.

Type: Article

Published: 2007, Volume 57, Issue 3, Pages 383-413

Abstract: Barefoot morphology comparison refers to the examination of the weight-bearing areas of the human foot to include or exclude suspects in a criminal investigation. Casts or inked impressions of a foot can be compared to bare or socked foot impressions found at a crime scene or to insoles of footwear linked to a crime scene. This article outlines some of the background research that has been conducted into the variability of barefoot impressions and describes the methods used to carry out the comparison. The technique is scientifically valid and should be considered in any cases where its use would be warranted.

Evaluation and Application of Polynomial Texture Mapping in the Area of Shoe and Impression Evidence

Author(s): Hamiel, J. S.; Yoshida, J. S.

Type: Article

Published: 2007, Volume 57, Issue 3, Pages 414-434

Abstract: This polynomial texture mapping (PTM) project explores the use of the PTM technology in forensic shoe and tire impression evidence, including the use of a smaller, more portable unit for field use. The research evaluates the usefulness of PTM images by comparing them to conventional sidelight and casting techniques of the same impressions. This technology in the forensic field could significantly reduce the overhead for already extended public resources while improving the quality of the data leading to more definitive information from the scene evidence. The use of the PTM technology has the potential for better resolved images for the comparison of known shoe soles or tire treads to impressions left at crime scenes.

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2007, Volume 57, Issue 3, Page 482

Abstract: This is a questionable pattern to interpret because of the unusual core. This is an Accidental Whorl (loop over a tented arch) with an outer tracing. It should be referenced to a Central Pocket Loop Whorl, since the core could appear to be an obstruction at right angles to the line off low. Contributor: Rudolfo R. Zamora, Sr., Mesa Police Department, Mesa, AZ.

Re: Questionnaire: Quality Assurance and Quality Control Procedures for Fingerprint Detection, J. For. Ident. Vol 56 (5)

Author(s): Kent, T.

Type: Letters

Published: 2007, Volume 57, Issue 2, Pages 189-192

STR Analysis Following Latent Blood Detection by Luminol, Fluorescein, and BlueStar

Author(s): Jakovich, C. J.

Type: Technical Note

Published: 2007, Volume 57, Issue 2, Pages 193-198

Abstract: Luminol and fluorescein are chemicals commonly used for presumptive tests to visualize latent blood associated with a crime scene. A new chemical, BlueStar, is now available for the same purpose. Research has shown that luminol and fluorescein do not interfere with STR analysis but little research has been done to demonstrate the effect of BlueStar, if any, on DNA analysis. In this study, blood-stained carpets that had been sprayed with luminol, fluorescein, and BlueStar were swabbed and the swabs were submitted for STR analysis. Full profiles at the 13 core CODIS STR loci were obtained from swabs from each carpet, demonstrating that BlueStar, like luminol and fluorescein, does not inhibit STR analysis.

The Mount Bierstadt Study: An Experiment in Unique Damage Formation in Footwear

Author(s): Adair, T. W.; Lemay, J.; McDonald, A.; Shaw, R.; Tewes, R.

Type: Technical Note

Published: 2007, Volume 57, Issue 2, Pages 199-205

Abstract: Randomly formed damage on footwear outsoles has appropriately been used to compare crime scene impressions to the known shoes of suspects, witnesses, and victims. In this study, the authors wore new, identical boots (two pairs) during a seven-mile hike. The authors attempted to control the major variables except the manner in which the outsole of the boot made contact with the ground. The results of this experiment support the use of these marks for the individualization of footwear and confirm their random formation through the use of the shoe by the wearer.

Thin-Layer Chromatography Detection of Volatile Denaturants in Denatured Spirits

Author(s): Sivaprasad, G.; Sivadurai, S. N.; Rajaram, S.

Type: Technical Note

Published: 2007, Volume 57, Issue 2, Pages 206-214

Abstract: Thin-layer chromatography (TLC) for the detection of volatile alcoholic denaturants (acetone, acetaldehyde, and formaldehyde) was carried out. 2,4-Dinitrophenylhydrazine was added to denatured alcohol along with a catalytic amount of concentrated sulphuric acid and the 2,4-dinitrophenylhydrazone derivatives formed were spotted in TLC along with authenticated samples and identified. This method does not necessitate the use of a spray to develop the spots or UV light to visualize the developed plate. Therefore, the test can be done in the field.

Improved System for Thin-Layer Chromatography of Bear Gall Bladders

Author(s): Sahajpal, V.; Goyal, S. P.; Vishal, M.

Type: Technical Note

Published: 2007, Volume 57, Issue 2, Pages 215-222

Abstract: Thin-layer chromatography studies were carried out on 40 bear gall bladders and 10 gall bladders of other animals (goat and pig) to develop a quicker and more sensitive protocol for identifying bear gall bladders. Fifteen solvent systems were tested for their efficacy and speed of separating bile components. Three different spraying reagents were tested for their sensitivity. We describe a solvent system that is faster in separating bile components with respect to solvent systems reported earlier. A different spraying reagent is recommended that is two times more sensitive than spraying reagents reported earlier.

Locating Taser Anti-Felon Identification Disks

Author(s): Lounsbury, D. A.; Thompson, L. F.

Type: Technical Note

Published: 2007, Volume 57, Issue 2, Pages 223-229

Abstract: The Taser weapon that projects two darts up to 25 feet on electrical wire leads has become prevalent as a result of civilian sales. In order to control misuse and to track legitimate use, the manufacture has included serialized identification disks known as Anti-Felon Identification (AFID). Identifying and locating the AFIDs for reconstruction and crime scene analysis is problematic because of their small size and their ability to land vertically in carpet or outdoor environments. This presentation demonstrates a method for locating the expended AFIDs, using an alternate light source.

Developing Friction Ridge Detail on the Interior of Latex and Nitrile Gloves

Author(s): Pleckaitis, J.

Type: Technical Note

Published: 2007, Volume 57, Issue 2, Pages 230-239

Abstract: A simple, one-step process using Wetwop to develop latent prints on latex gloves and nitrile gloves was tested. The tests produced identifiable prints on the gloves seventy-seven percent of the time.

The Use of Cellophane Tape to Overcome the Background Discoloration on Thermal Paper

Author(s): Siegel, S. D.

Type: Technical Note

Published: 2007, Volume 57, Issue 2, Pages 240-243

Abstract: Various types of cellophane tape were used to clear the background discoloration of thermal paper that occurs with wet ninhydrin processing.

Small Particle Reagent: A Saponin-Based Modification

Author(s): Jasuja, O. P.; Singh, G. d.; Sodhi, G. S.

Type: Technical Note

Published: 2007, Volume 57, Issue 2, Pages 244-251

Abstract: Small particle reagents involve the use of synthetic detergents. In this present work, the synthetic detergent component was replaced with saponin, a naturally found surface-active compound in the fruit of the *Sapindus mukorossi*. The reagent was found to work satisfactorily even after 15 days of storage in ambient conditions.

Alternative Metal Processes for Vacuum Metal Deposition

Author(s): Philipson, D.; Bleay, S.

Type: Article

Published: 2007, Volume 57, Issue 2, Pages 252-273

Abstract: This paper reports studies carried out to identify alternative vacuum metal deposition (VMD) processes that are capable of developing fingerprints on articles for which the existing gold and zinc process gives poor results. Initial studies indicated that the best results are obtained using silver deposited as a single metal. Further research established the optimum amount of metal and deposition conditions to be used. A mechanism is proposed for the silver VMD process. It was demonstrated both in a laboratory and in operational trials that additional fingerprints could be developed by depositing silver after the conventional gold and zinc process, and the technique is now recommended for operational use. (See Correction by David Philipson Stephen Bleay in JFI 57 (3).)

Fingerprint Image Quality Measurement Algorithm

Author(s): Yen, R.; Guzman, J.

Type: Article

Published: 2007, Volume 57, Issue 2, Pages 274-287

Abstract: We present a human-visual-perception-model-based algorithm for determining fingerprint image quality that results in a single score to represent the image's quality level. This method would allow an operator who is responsible for the collection of fingerprint images in the field to render, accept, and reject decisions quickly based on calculated quality scores. This method first identifies the fingerprint image's region of interest (ROI) and then targets that area for quality measurement. We then propose the ROI be reduced by 2 in both the horizontal and vertical axes by using a 5 x 5 low-pass filter with Gaussian weighting coefficients. The quality is then determined by the majority orientation within each cell of the image, which is formed by a 9 x 9 pixel block. An image's overall single quality score is calculated by taking the average of all the cells' quality levels.

Fingerprint Identification

Author(s): Burke, K.

Type: Book Review

Published: 2007, Volume 57, Issue 2, Page 288

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2007, Volume 57, Issue 2, Page 326

Abstract: This is an appropriate submission for Spring - a pattern containing a flower with stem and leaves! This is a CENTRAL POCKET LOOP WHORL with an outer tracing. A reference to a 13+ count right slant LOOP is also necessary, because of the recurves might appear to be too pointed or spoiled. Contributor: Sgt. Michael Bremenour, Crime Scene Unit, Livonia Police Department, Livonia, MI.

Back to Basics

Author(s): McRoberts, A. L.

Type: Back to Basics

Published: 2007, Volume 57, Issue 1, Page 1

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2007, Volume 57, Issue 1, Page 186

Abstract: This is a good example of distortion caused by injury. The injury and healing process has caused the ridges to be pulled together, creating the appearance of three deltas and two whorl patterns. This is actually a PLAIN WHORL with meet tracing, referenced to an ACCIDENTAL WHORL.

Uncertainties in Bullet Trajectories Reconstructed by the Trigonometric Method

Author(s): Rowe, W. F.

Type: Technical Note

Published: 2007, Volume 57, Issue 1, Pages 19-31

Abstract: The trigonometric method is an alternative to stringing for determining bullet paths at scenes of crimes. The locations of bullet holes are used to calculate both the horizontal and vertical angles of the bullet's path. In a post-Daubert world, crime scene reconstructionists need to be able to provide judges and juries with estimates of the errors or uncertainties in reconstructions such as the path of a bullet. This paper derives equations for the uncertainties in the horizontal and vertical angles calculated by means of the trigonometric method. In order to follow the derivation, the reader needs familiarity with differential calculus; however, the derived equations are simple and require only a calculator or table of trigonometric functions to use.

Letter re: Back to Basics

Author(s): Osborn, K. H.

Type: Letters

Published: 2007, Volume 57, Issue 1, Pages 2-3

Abstract: A response to a letter regarding a QUIP print.

Methamphetamine Information Program

Author(s): Warmenhove, R.

Type: Technical Note

Published: 2007, Volume 57, Issue 1, Pages 32-53

Abstract: The Methamphetamine Information Program (a software program) is thoroughly described. The easy-to-use software was developed to assist law enforcement personnel who investigate the manufacturing of methamphetamine. Chemical information, calculators, and tools within the program are described. Information regarding obtaining a free copy of the program is also provided.

Evaluation of a 1,2-Indanedione Formulation Containing Zinc Chloride for Improved Fingerprint Detection on Paper

Author(s): Stoilovic, M.; Lennard, C.; Wallace-Kunkel, C.; Roux, C.

Type: Technical Note

Published: 2007, Volume 57, Issue 1, Pages 4-18

Abstract: 1,2-Indanedione was first proposed as an amino acid reagent for latent fingerprint detection in 1997. Since that time, research groups around the world have undertaken and reported on studies aimed at optimizing the technique and comparing the results obtained with both ninhydrin and DFO development. There has been no general consensus in terms of preferred formulation, development conditions, metal salt treatment, observation conditions, and relative performance compared to conventional techniques. In this study, a new indanedione-zinc formulation is proposed that provides improved detection capabilities compared to DFO, with results that are less dependent on the relative moisture content of treated fingerprints. (See letter to the editor by Milutin Stoilovic, Chris Lennard, Christie Wallace-Kunkel, and Claude Roux JFI 57 (3).)

Eosin Y Detection of Latent Blood Prints

Author(s): Wang, Y.; Weiping, Z.; Janping, M.

Type: Technical Note

Published: 2007, Volume 57, Issue 1, Pages 54-58

Abstract: Preliminary tests for a new reagent for the enhancement of latent blood prints were conducted. Eosin Y was tested on a variety of surfaces and produced good contrast blood prints.

Photographing Fingerprints on Cylindrical Objects

Author(s): Chaikovsk, A.; Cohen, Y.; Gabai, Y.; Levi, J. A.

Type: Technical Note

Published: 2007, Volume 57, Issue 1, Pages 59-68

Abstract: Methods for correcting photographs of fingerprints from nonplanar surfaces are presented. The first method utilizes image processing procedures that spread the image on the picture and is applicable when the fingerprint covers less than half the circumference of the exhibit. In this situation the exhibit fingerprint can be captured in one shot. The second method is for fingerprints that are wrapped around the exhibit and uses multiple photographs of the exhibit.

Internet Study of Use and Effectiveness of Facial Composites in the United States

Author(s): Levi, J. A.

Type: Article

Published: 2007, Volume 57, Issue 1, Pages 69-75

Abstract: Facial sketch composites have been constructed and used to apprehend suspects since early times. This paper discusses facial composite use and effectiveness in the United States. The study was based on local media reports available on the Internet. An overall arrest rate of 10.6% was found.(See letter to the editor by Bob Powers in JFI 57 (3).)

Developing Fingerprints in Blood: A Comparison of Several Chemical Techniques

Author(s): Marchant, B.; Tague, C.

Type: Article

Published: 2007, Volume 57, Issue 1, Pages 76-93

Abstract: Although eccrine (sweat) prints are the most commonly encountered latent prints, blood latent impressions are also encountered. Because of the differing chemical compositions between blood and sweat, blood latents require unique processing procedures. In this article we compare four techniques used to chemically develop prints in blood: amido black, coomassie blue, ABTS, and fluorescein. The amido black processing procedure was used as the standard to which the other techniques were compared. Latent prints developed using each technique were evaluated according to (1) the clarity of the prints produced and (2) the level of detail that was observed. Each technique was also evaluated on its practicality for use, including preparation and development times, as well as overall cost and safety.

Forensic Medicine of the Lower Extremity by J. Rich, D.E. Dean, R. H. Powers (Eds.).

Author(s): Parkinson, G. A.

Type: Book Review

Published: 2007, Volume 57, Issue 1, Pages 94-96

Practical Homicide Investigation: Tactics, Procedures, and Forensic Techniques by V. Geberth

Author(s): Black, J. P.

Type: Book Review

Published: 2007, Volume 57, Issue 1, Pages 97-98

Practical Bomb Scene Investigation by T. James

Author(s): Laska, P. R.

Type: Book Review

Published: 2006, Volume 56, Issue 6, Pages 1000-1001

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2006, Volume 56, Issue 6, Page 1078

Abstract: This is a very unusual palmprint because of its unusual core formation. Because there is not sufficient recurve in front of the left delta, this right index finger would be classified as a 16 ridge count RADIAL (Left Slant) LOOP.

Letter re: The Boston Conference 2006

Author(s): Meijer, D.

Type: Letters

Published: 2006, Volume 56, Issue 6, Pages 873-876

The Pursuit of Objectivity in the Examination of Forensic Evidence

Author(s): Saviano, J.

Type: Commentary

Published: 2006, Volume 56, Issue 6, Pages 877-884

Abstract: Objectivity is highly valued as a precaution against inaccurate and self-serving conclusions. Consequently, crime scene investigators and forensic examiners are taught early on to be objective in their work. Since the importance of objectivity is generally accepted among those in the legal field, courtroom attacks on

expert and lay witnesses often come from the position of whether or not the witness has been completely objective regarding his or her findings or observations. But is complete objectivity ever attainable? This commentary takes a look at objectivity as it pertains to the investigation of crime scenes and the examination and analysis of physical evidence.

The Recovery of Registration Details from Vehicle Windscreens after Removal of the Registration Label

Author(s): Minutolo, J.

Type: Technical Note

Published: 2006, Volume 56, Issue 6, Pages 885-888

Abstract: When adhesive registration labels are removed from vehicle windscreens, impressions of the information on that label may remain latent on the glass. This latent information can be visualized by steaming the area from which the label was removed. The information revealed may be photographed and the resultant photograph used in the process of vehicle identification.

Factors Affecting the Acquisition of Antemortem Dental Records

Author(s): Delattre, V. F.; Chambers, S. K.

Type: Technical Note

Published: 2006, Volume 56, Issue 6, Pages 889-895

Abstract: This manuscript explores factors that may affect the acquisition of antemortem dental records from dental offices for the purpose of dental identification. Factors considered in this manuscript include overly strict adherence to privacy regulations, quality of dental treatment rendered to the patient, federal regulations, state regulations, and evolving legislation impacting dental offices. This manuscript also details how dental offices can remain compliant with rules concerning patient's privacy and the release of protected health information, while meeting the requests of medical examiners and law enforcement agencies for antemortem dental records.

The Application of Luminol to Bloodstains Concealed by Multiple Layers of Paint

Author(s): Bily, C.; Maldonado, H.

Type: Technical Note

Published: 2006, Volume 56, Issue 6, Pages 896-905

Abstract: An experiment was devised to determine whether blood could be detected through paint with the aid of luminol. The results of this experiment show that luminol was effective in detecting bloodstains through eight layers of paint.

A Photographic Comparison of Luminol, Fluorescein, and Bluestar

Author(s): Young, T.

Type: Technical Note

Published: 2006, Volume 56, Issue 6, Pages 906-912

Abstract: Three chemicals (luminol, fluorescein, and Bluestar) are photographically compared. The results demonstrate that Bluestar performs as well or better than luminol and fluorescein.

Further Investigation Supports the Accuracy of Polygraph Examinations

Author(s): Jaworski, R.

Type: Case Report

Published: 2006, Volume 56, Issue 6, Pages 913-932

Abstract: Psychologists have reservations concerning polygraph examination, especially the Control Question Technique. This article presents the results of a case with the polygraph examinations of three people and demonstrates that the claims of psychologists are unjustified.

Pilot Study: The Application of ACE-V to Simultaneous (Cluster) Impressions

Author(s): Black, J. P.

Type: Article

Published: 2006, Volume 56, Issue 6, Pages 933-971

Abstract: In December 2005, the Supreme Judicial Court of Massachusetts ruled that applying the ACE-V methodology to simultaneous impressions did not satisfy the requirements set forth in Daubert. Specifically, the Court stated that there was insufficient research on the topic of simultaneous impressions. This paper explores the hypothesis that an examiner can, after a thorough analysis, successfully determine whether two or more latent impressions were deposited at the same time. The study consisted of a series of thirty (30) latent impressions that were sent to volunteer latent print examiners around the world. Their task was to examine each impression and apply ACE-V to determine whether the impressions were truly simultaneous in nature. The data indicate that when making a definitive determination of either true or false, the participants were correct nearly 88% of the time.

Postmortem Skin Erosions Caused by Ants and Their Significance in Crime Reconstruction

Author(s): Jayaprakash, P. T.

Type: Article

Published: 2006, Volume 56, Issue 6, Pages 972-999

Abstract: Although the importance of bloodstain patterns on dead bodies has been well reiterated, the pattern of bloodstains effusing from postmortem skin erosions caused by ants, its relation to hypostasis, and its significance during crime reconstruction, especially for finding movement of the body, have not been addressed so far. It is shown here that prompt identification of the characteristics in the bloodstain pattern from postmortem skin erosions due to ant bites can be useful in eliminating confusion when scientifically reconstructing crimes.

Evaluation of Fingerprint Powders

Author(s): Saroa, J. S.; Sodhi, G. S.; Garg, R. K.

Type: Correction

Published: 2006, Volume 56, Issue 5, Pages 681-684

Abstract: Correction to article published in JFI 56 (2)

Letter re: Conclusion Scale for Shoeprint and Toolmarks Examinations

Author(s): Biedermann, A.; Taroni, F.; Aitken, C. G. G.

Type: Letters

Published: 2006, Volume 56, Issue 5, Pages 685-693

The Use of Camphor in the Development of Latent Prints on Unfired Cartridge Casings

Author(s): Sturelle, V.; Cominotti, C.; Henrot, D.; Desbrosse, X.

Type: Technical Note

Published: 2006, Volume 56, Issue 5, Pages 694-705

Abstract: The camphor fuming technique was applied on cartridge casings made of brass, lacquered brass, copper, nickel-plated brass, aluminum, and varnished steel. It was compared with three other techniques (cyanoacrylate, pyrrole electropolymerization, and silver nitrate) to determine the best technique for each surface. This method is inexpensive, nontoxic, and nonabrasive. There is no risk of overdeveloping the print, and the print may be transferred onto transfer plates, which is highly advantageous for cylindrical samples.

Use of Bluestar Forensic in Lieu of Luminol at Crime Scenes

Author(s): Dilbeck, L.

Type: Technical Note

Published: 2006, Volume 56, Issue 5, Pages 706-720

Abstract: Bluestar Forensic, a new luminol-based reagent, was tested in a blood-detection comparison study against luminol. Photographic results were compared and the ease of preparation and the lack of the need for complete darkness for visualization were evaluated. This study determined that Bluestar Forensic has distinct advantages when compared to luminol.

Cartridge Casing Ejection Patterns from Two Types of 9 mm Self-loading Pistols Can Be Distinguished from Each Other

Author(s): Pepper, I. K.; Bloomer, S. T.

Type: Technical Note

Published: 2006, Volume 56, Issue 5, Pages 721-725

Abstract: Cartridge casings that are recovered from the scene of a shooting can be of probative value in an investigation. One hundred rounds of 9 mm jacketed soft-point ammunition were fired from two self-loading pistols (Glock 17 and Sig Sauer P226). The resulting cartridge case ejection patterns were surveyed and plotted. The results show that the ejection patterns from the two self-loading pistols were different.

Marks on Skin Were Caused by Ants

Author(s): Tomboc, R.

Type: Case Report

Published: 2006, Volume 56, Issue 5, Pages 726-729

Abstract: During an autopsy, an unusual symmetrical pattern on the right arm of the victim was observed. After reviewing the case, a forensic entomologist concluded that the mark was the result of insect bites.

Bullets without Striations — Fired or Unfired?

Author(s): Ravikumar, R.; Rajan, P.; Thirunavukkarasu, G.; Vijay, S.

Type: Case Report

Published: 2006, Volume 56, Issue 5, Pages 730-736

Abstract: Bullets, spent cartridges, and firearms involved in a shoot-out were submitted for examination. Some of the bullets had no rifling marks. An examination revealed that they were unfired bullets.

Identifying and Sharing Class Characteristics of Outsole Impressions

Author(s): Brooks, J. M.

Type: Case Report

Published: 2006, Volume 56, Issue 5, Pages 737-743

Abstract: This case report discusses the importance of identifying characteristics of questioned footwear impressions from a crime scene. A footwear's manufacturer, brand, and model information should be shared with other footwear examiners to assist in the successful identification of questioned footwear impressions from other crime scenes.

The Forensic Examination of Cable Ties

Author(s): Gorn, M. E.; Hamer, P. S.

Type: Article

Published: 2006, Volume 56, Issue 5, Pages 744-755

Abstract: This paper describes how cable ties are manufactured and used, what to look for when comparing ties, and possible conclusions that can be reached. Two case studies in which cable ties were submitted for forensic analysis are discussed.

Preparation and Evaluation of Metal Nanopowders for the Detection of Fingermarks on Nonporous Surfaces

Author(s): Choi, M. J.; McDonagh, A. M.; Maynard, P. J.; Wuhrer, R.; Lennard, C.; Roux, C.

Type: Article

Published: 2006, Volume 56, Issue 5, Pages 756-768

Abstract: Gold and silver nanoparticles using oleylamine as a stabilizer have been formulated for developing latent fingermarks on nonporous surfaces. These nanopowders are compared with conventional powders such as black powder, black magnetic powder, aluminum powder, and white powder. Gold nanopowder produced sharp and clear development of latent fingermarks without background staining. Scanning electron microscope images revealed that particles were concentrated in the fingermark ridge areas, with only minor amounts located in the valley regions.

An Evaluation of Dental Stone, Traxtone, and Crime-Cast

Author(s): Bodziak, W. J.; Hammer, L.

Type: Article

Published: 2006, Volume 56, Issue 5, Pages 769-787

Abstract: Dental stone obtained in bulk from dental suppliers has been used worldwide at crime scenes for more than thirty years as the most popular casting material for recovering three-dimensional footwear and tire impressions. In recent years, preweighed products, such as Traxtone and Crime-Cast, have been introduced. This paper provides basic information about dental stone and how it should be used to cast impressions in sand and soil. The newer products are evaluated and compared to the traditional bulk dental stone. For this purpose, casts were made using each of the products in a variety of temperatures in Alaska and Florida.

Guide for Minimum Qualifications and Training for a Forensic Footwear and/or Tire Tread Examiner

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 56, Issue 5, Pages 788-793

Abstract: This Guide (Final dated 3/2006) describes the minimum qualifications and training for a forensic footwear and/or tire tread examiner.

Guide for the Forensic Documentation and Photography of Footwear and Tire Impressions at the Crime Scene

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 56, Issue 5, Pages 794-799

Abstract: This Guide (Final dated 3/2006) provides procedures for the documentation and photography of footwear and tire impressions at the crime scene.

Guide for the Examination of Footwear and Tire Impression Evidence

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 56, Issue 5, Pages 800-805

Abstract: This Guide (Final dated 3/2006) provides procedures for the examination of footwear and tire impression evidence in the laboratory.

Standard Terminology for Expressing Conclusions of Forensic Footwear and Tire Impression Examinations

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 56, Issue 5, Pages 806-808

Abstract: This terminology is intended to assist forensic footwear and tire examiners in expressing conclusions based on their examinations. (Final dated 3/2006)

Questionnaire: Quality Assurance and Quality Control Procedures for Fingerprint Detection

Author(s): Wakefield, M.

Type: S

Published: 2006, Volume 56, Issue 5, Pages 809-816

Abstract: A questionnaire that consists of questions aimed at gathering information about quality assurance and quality control procedures in fingerprint laboratories world-wide.(See letter to the editor by Terry Kent in JFI 57 (2).)

Publication Guidelines

Author(s): McRoberts, A. L.

Type: Special Feature

Published: 2006, Volume 56, Issue 5, Pages 817-829

Abstract: This guide provides specific guidelines so that authors can produce papers that will require less editorial effort. The more closely an author follows these guidelines, the more likely the article will be accepted and published.

Forensic Investigation Handbook: An Introduction to the Collection, Preservation, Analysis and Presentation of Evidence by M. Karaglozis and R. Sgaglio

Author(s): Parkinson, G. A.

Type: Book Review

Published: 2006, Volume 56, Issue 5, Pages 830-831

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2006, Volume 56, Issue 5, Page 870

Abstract: This is a very unusual palm print. Note the small whorl patterns in the third and fourth interdigital spaces of the left palm. This palm print appears to be looking back at you!

Re: A Report of Latent Print Examiner Accuracy During Comparison Training Exercises, J. For. Ident. 56 (1)

Author(s): Haber, L.; Haber, R. N.

Type: Letters

Published: 2006, Volume 56, Issue 4, Pages 493-510

Confirmation Bias, Ethics, and Mistakes in Forensics

Author(s): Byrd, J. S.

Type: Commentary

Published: 2006, Volume 56, Issue 4, Pages 511-525

An Advanced and Innovative Workflow for an AFIS Configuration

Author(s): Scarborough, S.; Henning, R.; Dechman, G.

Type: Technical Note

Published: 2006, Volume 56, Issue 4, Pages 526-533

Abstract: Through the use of nonproprietary equipment, personal computers (PCs), AFIS terminals at every fingerprint expert's workstation, and an all-digital approach to the system, the workflow of an AFIS operation can be improved. This AFIS system design can be more efficient and effective in the use of resources, both equipment and personnel, and more capable of handling workload increases.

Trained Dogs in the Crime Scene Search

Author(s): Mesloh, C.; James-Mesloh, J.

Type: Technical Note

Published: 2006, Volume 56, Issue 4, Pages 534-539

Abstract: In 2002, we began a project to determine the length of time that a trained police canine could locate evidence in the field. Despite fifty years of research in the field of police dogs and scent, there was a dearth of literature in this area. The researchers decided to conduct preliminary pilot studies in this area. A single dog was used, rather than a large group of canine teams, to identify any potential problems. In hindsight, this was a good decision because many issues in experimental design and data collection arose.

Ophthalmic Appliances in Identification: Information Retrieved from Spectacles

Author(s): Bertolli, E. R.; Forkiotis, C. J.; Pannone, D. R.

Type: Technical Note

Published: 2006, Volume 56, Issue 4, Pages 540-548

Abstract: Ophthalmic appliances may be located at crime scenes. These appliances may provide information that may aid in the investigation of a crime. This paper discusses what information is available and how it can be used by investigators.

Defining a Methodology for Bloodstain

Author(s): Gardner, R. M.

Type: Technical Note

Published: 2006, Volume 56, Issue 4, Pages 549-557

Abstract: Articulating a Concise Scientific Methodology for Bloodstain Pattern Analysis [1] exposed and attempted to explain, in an easy-to-understand manner, the steps involved in reaching a conclusion. This article attempts to further explain the application of scientific method to bloodstain pattern analysis, detailing additional steps and the specific questions posed in that process.

Trace DNA Presence, Origin, and Transfer within a Forensic Biology Laboratory and its Potential Effect on Casework

Author(s): Van Oorschot, R. A.

Type: Article

Published: 2006, Volume 56, Issue 4, Pages 558-576

Abstract: It is important to be aware of the possible presence of DNA-containing material on objects and surfaces within a forensic biology laboratory and its relative risk in relation to its potential to contaminate genetic profiles of casework samples. An assessment of objects and surfaces within our laboratory showed that several harbored DNA-containing material. The contamination risk of many of these objects and surfaces was low to medium because of the number of transfer steps required for contamination of a casework sample to occur. There were, however, two high-risk vectors from which sufficient DNA was retrieved to provide partial DNA profiles. It was found that gloves can accumulate DNA-containing material during the examination of exhibits and have the potential to transfer this to other items. It is recommended that forensic practitioners be aware of potential sources of contamination while performing examinations within their laboratory setting and ensure that their laboratory procedures limit the risk of contamination.

Footwear Examinations: Mathematical Probabilities of Theoretical Individual Characteristics

Author(s): Stone, R. S.

Type: Article

Published: 2006, Volume 56, Issue 4, Pages 577-599

Abstract: The trend in the forensic sciences favors objectivity over subjectivity. Courts in the United States are becoming increasingly hesitant to accept the opinion of an examiner who states, "It's a 'match' because I say it's a 'match'". Objectivity, in most cases, is reinforced by quantification. The individual characteristics that appear on a shoe print or shoe impression can be quantified using two primary variables. Their location on the print and their configuration and orientation yield measurable, discriminating data values. Theoretical types of individual characteristics that are found on shoe prints are described and discussed, and a hypothetical model is presented with probability estimates applied to quantify the likelihood of occurrence of the characteristics. With marks or combinations of marks of reasonable complexity, the magnitudes of the resultant numbers, though entirely abstract and based upon conservative assumptions, are remarkable.

Why Experts Make Errors

Author(s): Dror, I. E.; Charlton, D.

Type: Article

Published: 2006, Volume 56, Issue 4, Pages 600-616

Abstract: Expert latent fingerprint examiners were presented with fingerprints taken from real criminal cases. Half of the prints had been previously judged as individualizations and the other half as exclusions. We re-presented the same prints to the same experts who had judged them previously, but provided biasing contextual

information in both the individualizations and exclusions. A control set of individualizations and exclusions was also re-presented as part of the study. The control set had no biasing contextual information associated with it. Each expert examined a total of eight past decisions. Two-thirds of the experts made inconsistent decisions. The findings are discussed in terms of psychological and cognitive vulnerabilities.

SWGFAST Update

Author(s): Butt, L.

Type: Special Feature

Published: 2006, Volume 56, Issue 4, Page 617

SWGFAST — Changes to Current Documents

Author(s): SWGFAST

Type: Special Feature

Published: 2006, Volume 56, Issue 4, Page 618

SWGFAST Special Notice (Name Change for Major Case Prints to Complete Friction Ridge Exemplars)

Author(s): SWGFAST

Type: Special Feature

Published: 2006, Volume 56, Issue 4, Pages 619-627

SWGTREAD

Author(s): Wiersema, S.

Type: Special Feature

Published: 2006, Volume 56, Issue 4, Pages 628-629

SWGTREAD — Guide for Lifting Footwear and Tire Impression Evidence

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 56, Issue 4, Pages 630-634

Guide for Casting Footwear and Tire Impression Evidence

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 56, Issue 4, Pages 635-641

Abstract: Draft for Comment 03/2006

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2006, Volume 56, Issue 4, Page 678

Abstract: This is a difficult pattern to interpret . . . At first glance, it appears to be a DOUBLE LOOP whorl with a meet tracing. If "A" is a tented arch, the loop marked "B" does not form over the tented arch, negating an ACCIDENTAL WHORL pattern type. Therefore, this would be a LEFT SLANT LOOP with a count of 6. If "B" is spoiled, but "A" is not, this pattern is a TENTED ARCH. But, if this pattern does not fit by definition into any other class, it would be an ACCIDENTAL WHORL.

Fluorescence Detection of the Explosive Urea Nitrate with p-DMAC

Author(s): Menzel, E. R.; Schwierking, J. R.

Type: Technical Note

Published: 2006, Volume 56, Issue 3, Pages 325-332

Abstract: The fluorescence detection in the field of the explosive urea nitrate can provide substantial sensitivity gain over the analogous colorimetric detection if careful optical filtering is employed in compatibility with the fluorescence excitation source. The fluorescence modality meshes nicely with the corresponding approach applied to the detection of traces of numerous other explosives.

Lifting Dusty Shoe Impressions from Human Skin: A Review of Experimental Research from Colorado

Author(s): Adair, T. W.; Doberson, M.

Type: Technical Note

Published: 2006, Volume 56, Issue 3, Pages 333-338

Abstract: Experiments were conducted on a human cadaver in August of 2004 at the Arapahoe County Coroner's Office in Centennial, Colorado. An electrostatic dust print lifter (ESDL) was used to lift dusty shoe impressions from human skin. Shoe impressions of varied quality were tested with two commonly used ESDLs. All experiments support the use of this method for recovering dusty impressions from human skin.

Thin-Layer Chromatography of Black Shoe Polish Stains on Fabric

Author(s): Sahajpal, V.; Garg, R. K.

Type: Technical Note

Published: 2006, Volume 56, Issue 3, Pages 339-344

Abstract: Stains prepared from six brands of black shoe polish were studied using solubility tests, microscopic examination, and thin-layer chromatography (TLC). Fifteen different solvents were examined, and tetrahydrofuran and acetone were the most suitable solvents for the extraction of the stain. Microscopic examination was not useful in distinguishing between the various brands of black shoe polish. The most appropriate solvent system for analysis by thin-layer chromatography was n-butanol-ethanol-water (50:25:25 v/v/v) with the plate subsequently examined using visible light and ultraviolet light. Liquid shoe polishes could be

distinguished from semisolid shoe polishes by comparing the color of their extracts in tetrahydrofuran or acetone. Brands of shoe polishes could be differentiated using their developed chromatograms and R_f (distance between the substance zone and starting point divided by the distance between the solvent front and starting point, multiplied by a hundred) values in the new solvent system. The stains were successfully examined with TLC through 8 weeks.

The Etiology of ACE-V and its Proper Use: An Exploration of the Relationship Between ACE-V and the Scientific Method of Hypothesis Testing

Author(s): Triplett, M.; Cooney, L.

Type: Technical Note

Published: 2006, Volume 56, Issue 3, Pages 345-355

Abstract: ACE-V is commonly described as the scientific methodology that fingerprint practitioners use to individualize friction skin impressions, including both tenprint and latent print examinations. This paper looks at the history of ACE-V, analyzes whether a clear understanding of ACE-V exists, gives a brief description of how ACE-V should be used, and looks at the repercussions of incorrectly using ACE-V. Recognizing the misconceptions about ACE-V is the first step in establishing a comprehensive grasp of this process, which in turn will result in practitioners reaching the best possible conclusions.

Fingerprint Impression Development

Author(s): Ostrowski, S. H.; Dupre, M. E.

Type: Technical Note

Published: 2006, Volume 56, Issue 3, Pages 356-363

Abstract: A vacuum box instrument can be used to process documents for indented writing and associated markings. In this nondestructive procedure, a vacuum box applies suction and an electrostatic charge to affix acetate film to the surface of a document. The acetate film is then processed with a development powder to help visualize existing indentations. During the processing of a demand note from a bank robbery, an identifiable fingerprint impression was developed and ultimately identified to a suspect.

Chemical Fuming: A Practical Method for Fingerprint Development on Thermal Paper

Author(s): Ma, Q.; Wei, Q.

Type: Technical Note

Published: 2006, Volume 56, Issue 3, Pages 364-373

Abstract: This paper describes a useful method of chemical fuming for the development of latent fingerprints on the thermal surface of thermal paper. Nine chemicals were tried, and the effectiveness between chemical fuming and ninhydrin was also compared. Several chemicals were effective in developing fingerprints on the thermal surface; however, acetic acid was the best.

Detection of Latent Fingerprints on Fruits and Vegetables

Author(s): Singh, G. d.; Sodhi, G. S.; Jasuja, O. P.

Type: Technical Note

Published: 2006, Volume 56, Issue 3, Pages 374-381

Abstract: Latent fingerprints are a common and important form of physical evidence at crime scenes. These latent fingerprints may be present on a variety of objects, including the surfaces of fruits and vegetables. This study was conducted to determine the best procedure for developing latent fingerprints on fruits and vegetables. Powders were able to develop latent fingerprints with very high quality. The iodine fuming method did not yield good results.

Establishing the Sequence of Intersecting Ballpoint Pen and Felt-Tipped Marker Strokes

Author(s): Singla, A. K.; Thakar, M. K.

Type: Case Report

Published: 2006, Volume 56, Issue 3, Pages 382-387

Abstract: An examination of the reverse side of a paper sometimes provides valuable and conclusive evidence. In this case report, the authors describe a peculiar phenomenon of the seepage of felt-tipped marker ink underneath the intersecting ballpoint pen strokes. This phenomenon can be helpful in determining the chronological sequence of intersecting ballpoint pen and felt-tipped marker strokes.

A Guide for the Artist

Author(s): Jackson, C. T.

Type: Article

Published: 2006, Volume 56, Issue 3, Pages 388-401

Abstract: The guide assists with determining the image size, page orientation, and gauging vertical and horizontal balance without affecting the proportions of the selected facial feature references. This system allows the artist to concentrate on developing as close a likeness as possible. The "base face" is created solely on the selected features of the victim, thus, in many cases, fewer corrections are required.

Review of FBI Latent Print Unit Processes and Recommendations to Improve Practices and Quality

Author(s): Smrz, M. A.; Burmeister, S. G.; Einseln, A.; Fisher, C. L.; Fram, R.; Stacey, R. B.; Theisen, C. E.; Budowle, B.

Type: Special Feature

Published: 2006, Volume 56, Issue 3, Pages 402-434

Abstract: In the aftermath of the March 11, 2004, Madrid train bombing, personnel from one of the FBI Latent Print Units (LPUs) performed a latent print analysis and reported an individualization of that print with a candidate print derived from an Integrated Automated Fingerprint Identification (IAFIS) search. Subsequently that individualization was determined to be in error, and the latent print was ultimately identified correctly as belonging to a different subject. By all accounts, the incorrect identification was primarily due to human error and does not in itself call into question the fundamental reliability of latent print friction ridge skin impression pattern analysis. Because of quality-assurance practices and the FBI Laboratory's desire to improve its operations, the FBI Laboratory took the opportunity to identify limitations in its current practices in friction ridge skin impression pattern analysis. Eight internal latent print review teams were created to (1) conduct a more extensive review of the current practices in the LPUs and (2) suggest to the FBI Laboratory Director courses of action for improvement. This report details the findings and recommendations made by the internal review teams.

Principles of Bloodstain Pattern Analysis: Theory and Practice by S. H. James

Author(s): Griffin, T. J.

Type: Book Review

Published: 2006, Volume 56, Issue 3, Pages 435-437

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2006, Volume 56, Issue 3, Page 490

Abstract: This is an unusual, interesting pattern...a combination of a loop and double loop, making it an ACCIDENTAL WHORL. If this print were not fully rolled, the far left loop may not appear, therefore requiring a reference to a Double Loop Whorl. The extreme left delta is not visible, therefore the tracing would be classified as an INNER, with references to Meeting and Outer tracings.

A Report of Latent Print Examiner Accuracy During Comparison Training Exercises

Author(s): Wertheim, K.; Langenburg, G. M.; Moenssens, A.

Type: Correction

Published: 2006, Volume 56, Issue 2, Pages 177-178

Abstract: On pages 79 and 85 of the January/February 2006 issue of the Journal of Forensic Identification (volume 56, issue 1), the two tables appeared with incorrect data.

Concerns When Using Examination Gloves at the Crime Scene

Author(s): Lounsbury, D. A.; Thompson, L. F.

Type: Technical Note

Published: 2006, Volume 56, Issue 2, Pages 179-185

Abstract: Universal precautions that are used by forensic personnel at crime scenes are necessary to protect the crime scene processors from chemical and biological hazards. These precautions also serve to ensure that the scene is not contaminated by actions of the crime scene examiners. A particular type of glove that is routinely used in crime scene processing does protect against hazards but is not effective against scene contamination.

Evaluation of Fingerprint Powders

Author(s): Saroa, J. S.; Sodhi, G. S.; Garg, R. K.

Type: Technical Note

Published: 2006, Volume 56, Issue 2, Pages 186-197

Abstract: Several methods have been suggested for the development of latent fingerprints on different surfaces. This paper presents a comparative assessment of a few different powdering methods (e.g., phloxine B dye, fluorescein dye, rhodamine B dye, and activated charcoal) for the development of latent fingerprints on different substrates. [See correction JFI 56 (5).]

Thin-Layer Chromatography of Nail Enamels

Author(s): Gupta, N.; Saroa, J. S.; Sharma, R. M.

Type: Technical Note

Published: 2006, Volume 56, Issue 2, Pages 198-209

Abstract: Nail enamel smears, chips, or flakes are sometimes encountered as trace evidence in crimes involving women. Various techniques have been used to analyze such evidence. In the present work, an attempt has been made to characterize common nail enamels by thin-layer chromatography.

Defining the Diameter of the Smallest Parent Stain Produced by a Drip

Author(s): Gardner; R.M.

Type: Technical Note

Published: 2006, Volume 56, Issue 2, Pages 210-221

Abstract: This study sought to define the size of the smallest parent stain produced by gravity-induced drips (also known as LVIS, passive spatter, passive drops, venous drops). It examines four typical crime scene substrates (linoleum, cloth, tile, and carpet) and three mechanisms of droplet creation (knife tip, nail tip, and hypodermic needle).

A Modified Method for Purification of Biological Samples Collected on FTA Cards for STR Analysis

Author(s): Barash, M.; Shpitzen, M.; Gafny, R.; Zamir, A.

Type: Technical Note

Published: 2006, Volume 56, Issue 2, Pages 222-231

Abstract: FTA cards are regarded as a method of choice for the preservation and storage of blood and saliva prior to genetic testing. In this study, we compared the recommended protocol of DNA purification and amplification from FTA cards to a method we developed in the laboratory. Our simplified method was tailored for amplification using the AmpFLSTR SGM Plus kit.

MAPP Gas: An Alternative to Oxyacetylene

Author(s): Smith, D. R.; Hall, B. R.

Type: Technical Note

Published: 2006, Volume 56, Issue 2, Pages 232-241

Abstract: MAPP gas is compared to oxyacetylene for use in the restoration of vehicle identification numbers. Significant advantages in equipment weight and cost are demonstrated.

Validation of the BackTrack Suite of Programs for Bloodstain Pattern Analysis

Author(s): Carter, A. L.; Forsythe-Erman, J.; Hawkes, V.; Illes, M.; Laturnus, P.; Lefebvre, G.; Stewart, C.; Yamashita, B.

Type: Article

Published: 2006, Volume 56, Issue 2, Pages 242-254

Abstract: Directional analysis provides bloodstain pattern analysts with a method for calculating the approximate location of a source of a bloodstain pattern that is independent of the light path curvatures of the blood drops. The BackTrack suite of programs allows the analyst to use digital photographs of stains to compute the region in space where the blood source was positioned at the time of impact. Repeated trials carried out by various operators using a large number of different practice targets have been used to validate the computer program. Without knowing the initial location of the blood source, analysts have been able to use BackTrack to determine X-, Y-, and Z-values that lie within an average of at most 7 cm of the actual location. By comparison, the so-called "tangent method" also produced very good results by approximating the light path of the blood drop as the hypotenuse of a right triangle.

Conclusion Scale for Shoeprint and Toolmarks Examinations

Author(s): ENFSI Expert Working Group - Marks Conclusion Scale Committee

Type: Special Feature

Published: 2006, Volume 56, Issue 2, Pages 255-280

Abstract: The Conclusion Scale Committee (CSC) of the ENFSI Expert Working Group Marks (EWG Marks) reached very soon with common consent a harmonized "Six-Level Conclusion Scale" for interpreting findings in proficiency tests and collaborative exercises within ENFSI. The theoretical fundamentals of this harmonized conclusion scale take into account interpretation models based on the Bayes' rule. However, these mathematical background models weren't and aren't reached with common consent. Some members of CSC say that only one of the three parts of the Bayes' rule - the likelihood ratio - is for the forensic experts. And furthermore, this group favours interpretations of the Bayes' rule with formulations such as the prosecution and the defense hypotheses and presumption of innocence or adjudicative fact-finder. The others - and these are the majority of the members of CSC - have the opinion that words like prosecution, defense, presumption of innocence, and adjudicative factfinder are non-scientific elements and therefore things for the judges or jury members and normally these aren't issues for the forensic scientists.

The majority of the members of CSC emphasize that in many countries the practice in court is that the judges and jury members need to get answers to questions such as "What is the probability that the questioned shoesole produced the print?" So, the jury requires answers for a given effect in retrograde to the cause. This is an answer to a line of reasoning against the causal direction and that is also termed a diagnostic result (a posteriori probability): the interest of the court ultimately lies in the posterior odds in forensic scientific experiments. So, the majority of the members of the CSC apply all three parts of the odds form of the Bayes' rule, using only scientific interpretations by means of the Principle of Causality and of the Principle of Maximum Entropy (PME). And furthermore, they show that this interpretation incorporates the "Traditionalists" with the "Classical Approach". [See letter to the editor by A. Biedermann, F. Taroni, and C. G. G. Aitken in JFI 56 (5).]

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2006, Volume 56, Issue 2, Page 322

Abstract: This plain whorl could create a headache if found at a crime scene. It is not a fingerprint... this print happens to be from the hypothenar zone of the right palm.

re: Obtaining Typable DNA from Bloodstains that Serologically Test Negative, J. For. Ident. 55 (5)

Author(s): Hofsass, P.

Type: Letters

Published: 2006, Volume 56, Issue 1, Pages 1-5

Guide for the Forensic Documentation and Photography of Footwear and Tire Impressions at the Crime Scene.

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 56, Issue 1, Pages 102-106

Abstract: Draft for comment 09/2005

Guide for the Examination of Footwear and Tire Impression Evidence

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 56, Issue 1, Pages 107-112

Abstract: Draft for comment 9/2005

Standard Terminology for Expressing Conclusions of Forensic Footwear and Tire Impression Examinations

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 56, Issue 1, Pages 113-116

Abstract: Draft for comment 09/2005

SWGFAST — Quality Assurance Guidelines for Latent Print Examiners

Author(s): SWGFAST

Type: Special Feature

Published: 2006, Volume 56, Issue 1, Pages 117-128

Abstract: Draft for comment ver 2.3

Back to Basics

Author(s): Osborn, K. H.

Type: Back to Basics

Published: 2006, Volume 56, Issue 1, Page 174

Abstract: Shown is a 14-count right slant LOOP with a very unusual formation in the core area. For classification purposes, the core is placed as shown. Contributor: This was submitted by Richard W. Kinney, California Department of Justice, Fresno, CA.

Explosive Effects on Latent Print Evidence

Author(s): Lanagan, S. R.

Type: Technical Note

Published: 2006, Volume 56, Issue 1, Pages 18-23

Abstract: An initial test was conducted to determine whether undeveloped latent print impressions would survive an explosion. Test prints were located on surfaces in the vehicle and on the vehicle's exterior door handles. Two types of explosives were placed in a vehicle and were detonated. Some surface areas where the prints had been deposited were completely destroyed during the blasts. Only one very faint print was located on an exterior door handle.

Investigation into the Binding of Gold Nanoparticles to Fingermarks Using Scanning Electron Microscopy

Author(s): Choi, M. J.; McBean, K. E.; Wuhner, R.; McDonagh, A. M.; Maynard, P. J.; Lennard, C.; Roux, C.

Type: Article

Published: 2006, Volume 56, Issue 1, Pages 24-32

Abstract: For the first time, scanning electron microscopy has been used to investigate the binding of gold nanoparticles to fingermarks placed on nonporous surfaces. The results show that gold nanoparticles, under standard MMDII conditions, bind preferentially to latent fingermark ridges on nonporous surfaces. Variation in surfactant concentration influences background development but does not affect the binding of gold nanoparticles to the ridges, while pH variation influences the binding to ridges but leaves valley regions unaffected.

Oil Red O Versus Physical Developer on Wet Papers: A Comparative Study

Author(s): Rawji, A.; Beaudoin, A.

Type: Article

Published: 2006, Volume 56, Issue 1, Pages 33-54

Abstract: Amino acids dissolve in water, and, therefore, fingerprints on porous surfaces that have been exposed to aqueous environments cannot be tested with traditional methods such as ninhydrin or DFO. Traditionally, the physical developer method has been used. Tests were conducted to compare Oil Red O and physical developer on three types of paper surfaces: thermal paper, white standard paper, and brown kraft paper. Oil Red O was consistently superior to physical developer in terms of the mean fingerprint quality produced on thermal paper. Oil Red O was also shown to be superior for recovering fingerprints on standard white paper. On brown paper, the mean fingerprint quality was not significantly different between the two methods. This research supports the use of Oil Red O in laboratories for the treatment of wet porous surfaces.

A Report of Latent Print Examiner Accuracy During Comparison Training Exercises

Author(s): Wertheim, K.; Langenburg, G. M.; Moenssens, A.

Type: Article

Published: 2006, Volume 56, Issue 1, Pages 55-93

Abstract: During comparison training exercises, data from 108 participants were collected. For each participant, the following were recorded: the number of comparisons performed, the number of correct individualizations made, the number of erroneous individualizations made, the number of clerical errors made, and the assessments of the latent prints regarding the quantity and quality of information present in the latent prints in the exercises. Additional information regarding the training and experience of the participant was also gathered in such a manner that preserved the anonymity of the participant. Because the training courses were open to participants of any skill level, including participants with no training and experience, the authors separated the data of participants with more than one year of experience from the data of participants with one year of experience or less. The 92 participants with more than one year of experience made 5861 individualizations (identifications) at the highest level of confidence. Fifty-eight hundred of these individualizations were correct and 61 of these individualizations were one of two types of error: 59 were clerical in nature and 2 were erroneous individualizations. This resulted in an erroneous individualization rate of 0.034% and a clerical error rate of 1.01% for the participants with more than one year of experience during these training exercises. A follow-up experiment was performed involving verification of the errors reported by previous participants. Sixteen participants with more than one year of experience acted as verifiers to previous participants' results. Each verifier was given a packet to verify containing the results of eight correct individualizations and two errors. These 16 independent reviewers did not verify any of the errors given to them in the verification packet exercises. [See correction JFI 56 (2), 177-178.]. [See Letter to the editor by Lyn Haber JFI 56 (4).]

Use of Tilt and Shift Lens in Forensic Photography

Author(s): Chung, J. W.

Type: Technical Note

Published: 2006, Volume 56, Issue 1, Pages 6-17

Abstract: A tilt and shift lens (TS lens) has special features that enable it to tilt $\pm 8^\circ$ with respect to the film plane and to shift the lens up to 11 mm from the center of the film plane. In this paper, the application of the TS lens in the field of forensic science is presented. It is shown that the TS lens is useful in (1) photographing imprint evidence on reflective surfaces, (2) photographing imprint evidence on a partially shielded area, and (3) scene photography in some difficult positions. Some problems that are encountered with photography when using a normal lens can be overcome with the use of the TS lens.

SWGTHREAD — Message

Author(s): Wiersema, S.

Type: Special Feature

Published: 2006, Volume 56, Issue 1, Pages 94-95

Guide for Minimum Qualifications and Training for a Forensic Footwear and/or Tire Tread Examiner

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 56, Issue 1, Pages 96-101

Abstract: Draft for Comment 09/2005

A Comparison of Cyanoacrylate Fuming in a Vacuum Cabinet to a Humidity Fuming Chamber, J. For. Ident. 55 (1)

Author(s): Kent, T.

Type: Letters

Published: 2005, Volume 55, Issue 6, Pages 681-684

An Interesting Case Involving Footwear Distribution Information, J.For. Ident. 55 (4)

Author(s): Black, J. P.

Type: Letters

Published: 2005, Volume 55, Issue 6, Pages 685-686

Remains to Be Seen!

Author(s): Powers, R.

Type: Technical Note

Published: 2005, Volume 55, Issue 6, Pages 687-696

Abstract: Unidentified human remains present a multitude of difficulties to investigators. Positive identification is often chief among these. When law enforcement personnel and the Medical Examiner - Coroner have exhausted traditional means, such as fingerprints or dental comparisons, a forensic artist may be called upon to render a likeness from skeletal, badly decomposed, or disfigured remains. Usually, the forensic artist has not been to the scene or autopsy and must rely solely on photographs, physical evidence, and information provided by other personnel. Often, a significant amount of time elapses between the initial investigation and the decision to use a forensic artist. How successful the finished likeness is depends on the condition of the remains and the quality of physical evidence or photographs provided to the artist.

Forensic Identification Study Groups

Author(s): Klasey, D. R.

Type: Technical Note

Published: 2005, Volume 55, Issue 6, Pages 697-701

Abstract: Forensic specialists can receive no-cost training and networking contacts by attending study groups. This paper will discuss the Northern California Forensic Identification Study Group, one of the oldest in the country, as an example of what can be accomplished when professionals work together.

Laterally Inverted Fingerprints

Author(s): Czamecki, E. R.

Type: Case Report

Published: 2005, Volume 55, Issue 6, Pages 702-706

Abstract: A few documented cases of laterally inverted fingerprint impressions are reviewed. Two additional cases are also presented and discussed to emphasize the importance of proper analysis during the comparison process.

Cold Case Project

Author(s): McLean, R.

Type: Case Report

Published: 2005, Volume 55, Issue 6, Pages 707-710

Abstract: A project to rerun latents that had been previously registered in the CAL-ID unsolved latent database was initiated. Searches through local, state, regional, and federal AFIS databases provided a 30% hit rate on latents that had been previously searched in one or more databases. This project demonstrates the value in rerunning cold case latents.

Three-Dimensional Representation of Bloodstain Pattern Analysis

Author(s): Maloney, K.; Jory, S.; Carter, A. L.; Yamashita, B.

Type: Article

Published: 2005, Volume 55, Issue 6, Pages 711-725

Abstract: As part of a bloodstain pattern analysis course delivered at the Canadian Police College by the Royal Canadian Mounted Police, a mock crime scene bloodstain pattern was analyzed by computer, and the results were rendered in three dimensions for court presentation. The data from the BackTrack program used on the course were successfully integrated into a standard AutoCAD program in order to show the virtual flight paths of droplets of blood in a three-dimensional depiction.

The Importance of Careful Interpretation of Shell Casing Ejection Patterns

Author(s): Sims, E.; Barksdale, L.

Type: Article

Published: 2005, Volume 55, Issue 6, Pages 726-740

Abstract: An experiment was conducted to gain information about shell casing ejection patterns. The research project showed that shell casing ejection patterns are dependent on a number of variables: type of firearm, stance, hand and weapon position (grip), and movement.

Enhancement of Fingerprints in Blood Part 3: Reactive Techniques, Acid Yellow 7, and Process Sequences

Author(s): Sears, V. G.; Butcher, C. P.; Fitzgerald, L. A.

Type: Article

Published: 2005, Volume 55, Issue 6, Pages 741-763

Abstract: A systematic evaluation of a number of techniques that react with the components of blood has been carried out on various surfaces (both porous and nonporous) that are typically found at scenes of crime. Most effective on porous surfaces were DFO and ninhydrin, which react with amines. On nonporous surfaces, no process was found to be as effective at developing fingerprint detail as the protein dye benzoxanthene yellow. However, because this dye has become unavailable, acid yellow 7 was determined to be a suitable replacement.

Scope of Work Relating to Forensic Footwear and/or Tire Tread Examiners

Author(s): SWGTREAD

Type: Special Feature

Published: 2005, Volume 55, Issue 6, Pages 764-765

Guide for the Detection of Footwear and Tire Impressions in the Field

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 55, Issue 6, Pages 766-769

Abstract: Final 03/2005

Guide for the Collection of Footwear and Tire Impressions in the Field

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 55, Issue 6, Pages 770-773

Abstract: Final 03/2005

Guide for the Detection of Footwear and Tire Impressions in the Laboratory

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 55, Issue 6, Pages 774-777

Abstract: Final 03/2005

Guide for the Collection of Footwear and Tire Impressions in the Laboratory

Author(s): SWGTREAD

Type: Special Feature

Published: 2006, Volume 55, Issue 6, Pages 778-780

Abstract: Final 03/2005