<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table of Contents</td>
<td>1</td>
</tr>
<tr>
<td>IABPA 2006 Officers</td>
<td>2</td>
</tr>
<tr>
<td>President’s Message</td>
<td>3</td>
</tr>
<tr>
<td>Bloodstain Photography</td>
<td>4</td>
</tr>
<tr>
<td>Christopher Duncan</td>
<td></td>
</tr>
<tr>
<td>Research Article - Detecting Blood Patterns in Soil with Luminol</td>
<td>14</td>
</tr>
<tr>
<td>Two Years after Deposition</td>
<td></td>
</tr>
<tr>
<td>Adair, T.W., Shimamoto, S., Tewes, R., and Gabel, R.</td>
<td></td>
</tr>
<tr>
<td>International Association of Bloodstain Pattern Analysts Bloodstain</td>
<td>20</td>
</tr>
<tr>
<td>Pattern Analysis Basic Course Requirements</td>
<td></td>
</tr>
<tr>
<td>Abstracts of Recent BPA Related Articles Published in the Scientific</td>
<td>25</td>
</tr>
<tr>
<td>Literature</td>
<td></td>
</tr>
<tr>
<td>Bloodstain Pattern Analysis in the News</td>
<td>26</td>
</tr>
<tr>
<td>Alexei Pace</td>
<td></td>
</tr>
<tr>
<td>2007 International Association of Bloodstain Pattern Analysts</td>
<td>28</td>
</tr>
<tr>
<td>Annual Training Conference</td>
<td></td>
</tr>
<tr>
<td>The Second European IABPA Region V Training Conference 2008</td>
<td>29</td>
</tr>
<tr>
<td>Zurich, Switzerland</td>
<td></td>
</tr>
<tr>
<td>Organizational Notices</td>
<td>30</td>
</tr>
<tr>
<td>Training Opportunities</td>
<td>31</td>
</tr>
<tr>
<td>Editor’s Corner</td>
<td>32</td>
</tr>
<tr>
<td>Past Presidents of the IABPA</td>
<td>33</td>
</tr>
<tr>
<td>Associate Editors of the IABPA NEWS</td>
<td>33</td>
</tr>
</tbody>
</table>
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PRESIDENTS MESSAGE

It is with humble gratitude that I write this first message as you have entrusted to me the office of President of the IABPA. I will do my best to continue the path blazed by our past president, Bill Basso. As a colleague and friend, I am greatly appreciative for the knowledge he has shared and will undoubtedly continue to share with me. His devotion to this organization over the past 4 years has been remarkable and speaking on behalf of the IABPA, thank you, Bill, for a job well done.

As I take on this role of President, I can’t help but think back to the first IABPA conference I attended in 1996 in Albuquerque, NM. I remember feeling very welcomed and at ease there. Each member seemed so approachable, even those I had read the books of but never met. Since then, I have been fortunate enough to attend each and every conference (including hosting the 2002 conference in my hometown of Harrisburg, PA) as well as our first European conference held this past year in The Netherlands. Each year I have gained new friendships and received encouragement to become more active in the organization. And now, here I am as President of this fine organization – our organization – encouraging you to do the same. If you ever wanted to become more active, or make a change, the time is now. Please feel free to contact me or any member of the board to express your comments, concerns or to volunteer to make a difference.

I end this first message with a final thought. Our past presidents have routinely closed their message with the adage “Be good to one another”. These words are often heard yet sometimes not heeded. As you work in your professional day to day activities, think of these words whether writing an email, sending letter correspondence or testifying in court with opposing experts. We can often agree to disagree respectfully, while being “good to one another”.

I look forward to serving you as your president and thank you once again for your trust.

Take care of yourselves,

LeeAnn Singley
President, IABPA

P.S. Moving onward into 2007, we look forward to meeting again in San Antonio, Texas for this year’s annual conference. Please keep an eye on the website and the newsletter for updated information regarding the conference.
Bloodstain Photography

Christopher Duncan

Introduction

The photographic documentation of bloodstain evidence can be problematic for both the photographer and the examiner trying to interpret patterns from a scene they may not have visited. The documentation of bloodstains is typically hindered by incomplete scene photography, various lighting problems, and perspective issues. By understanding some of the pitfalls in quality scene photography, investigators can better present bloodstain evidence in court and assist investigators who may be called upon to interpret stains found at a scene.

Lack of thoroughness may be the most common complaint bloodstain examiners have when reviewing a case. Failure by the scene investigator to completely and accurately photograph a blood-letting event can hinder any criminal investigation. The number one rule of crime scene photography is that “the value of completeness does not override the cost of film.” Now that many departments have converted to digital formats, there is absolutely no excuse for incomplete scene documentation.

Every stain that is worth documenting at a close-up level needs to be oriented to the entire crime scene. Therefore, photographers must not focus in on small patterns and small stains without first putting them in context or relationship to other pieces of evidence. Photographers must not get tunnel vision, but rather think of the “big picture” and provide comprehensive documentation for investigators and/or jurors that were not present at the crime scene (Figures 1, 2, and 3). It is important to document bloodstains found on victims and suspects as well as those stains found on a wall or floor. Once again, orientation of the stains for the examiner is essential, but also the value of showing jurors where important stains were found and on whom they were found can be critical (Figures 4, 5, and 6).

![Figure 1. Overall photograph of bloodstained kitchen floor with overturned chair.](image.jpg)
Figure 2. Mid-range photograph shows open door of kitchen cabinet.

Figure 3. Close-up photograph of bloodstain designated as Stain 3.

Figure 4. Over-all photograph of person with bloodstained jeans and shoes.

Figure 5. Closer view of bloodstained jeans and shoes.
One way to assist in the orientation of stains is to use a Sharpie®-type permanent marker and indicate directionality of stains in the photograph. One word of warning: make sure that an adequate number of overall photographs have been taken before marking all over the crime scene. By placing orientation marks (Door & North) in your photographs, stain patterns and directionality can be more easily identified (Figures 7 and 8). Figure 7 contains a circular level. A second circular level is placed on the back of the camera and the two are aligned in order to ensure a parallel orientation between the camera and subject. Other orientation markers could simply be arrows, compasses, or carpenter rulers to indicate stain heights (Figures 9 and 10). Carpenter rulers can be extended and held against the wall with plumbers putty and they provide a definitive point of reference for the stain being documented.
Another problem area in photographing bloodstains occurs when trying to capture small stains on white surfaces, such as walls and floors. Cameras do not see color, they only see black and white and they determine exposures based on an 18% gray value. The problem of underexposed images occurs frequently because the camera is “seeing” a mass of white in its viewfinder and desires to lower the exposure in order to turn the white wall 18% gray. Photographers can use a gray card to meter exposures before every shot, but bracketing exposures and taking a second photograph increasing the exposure by one full f/stop is usually sufficient. Everyone’s camera meters light in a slightly different way and some investigators might find they obtain the best results by bumping exposures half an f/stop or maybe as much as two f/stops. By running a few test exposures prior to working a crime scene, investigators will know how their cameras handle difficult situations. Figure 11 was captured in “Program Mode” without any compensation for the exposure evaluation made by the camera. The white baseboard came out gray because the camera acted as it was designed. Figure 12 is a one f/stop increase in exposure and now the white baseboard appears white and the blood appears red.
Flash exposures also can cause difficulty to investigators, especially if they rely too much on the camera’s “pop-up” flash. A pop-up flash or even an external flash mounted directly to the camera’s hot shoe mount can create unacceptable images. The flash will bounce off the bloodstain and create a glossy appearance which can actually eliminate the stain from being seen in the final image. It is necessary to use a flash-synchronization cord and flash the stain from the side in order to capture of the available all of the available detail. The angle of the flash does not have to be severe, but it must not be perpendicular to the subject. The angle of incidence equals the angle of reflection.

In other words, when light is emitted at a 90-degree angle from the camera, then it will return with all its intensity and unwanted reflections back to the camera’s lens. This concept is very similar to “red-eye” found in pictures of people. One way to eliminate red-eye is to change the angle or height of the flash. Bloodstains are no different. The bloody footprint in figure 13 was created with the flash mounted directly to the camera. The print is almost completely lost because of the stain’s bright reflection created from the flash. The footprint in figure 14 is the same print, but the flash was held at an oblique angle and the stain is much clearer. In figure 15, the bright flash creates difficulty for those needing to interpret bloodstain patterns from photographs. However, simply moving the flash off the camera and to the side (as in figure 16), photographers will capture the color and texture of the blood much more accurately and give bloodstain examiners a better record from which to work.
Figure 13. Photograph of board with footprint oblitered by flash.

Figure 14. Same area photographed with oblique lighting.

Figure 15. Bloodstains on wall washed out by flash mounted directly over camera lens.

Figure 16. Same area of bloodstains on wall photographed with flash angled from the side.
Although the oblique-flash lighting in the image in figure 17 is acceptable, investigators often times forget about the option of just using available light (figure 18). (These tire impressions made in blood were during a nighttime crime scene.) Ambient light, whether it is during the day
or night, is sometimes a better choice than adding light with a flash. If the stain is important, photographers can capture an image using several techniques in order to ensure a quality and useful photograph. Reflective surfaces, such as high-gloss automobile paint (figure 19), can create difficulties for bloodstain examiners. When photographing reflective surfaces, remember that the angle of incident equals the angle of reflection and the flash needs to be pulled away from the camera and placed at an angle to the subject (figure 20).

Photographers need to get up close and personal with their subjects. Although no one enjoys crawling around in blood, it is necessary in order to capture quality images for court and for investigators. After fully documenting the overall scene and after any evidence processing, investigators can then lay down butcher paper or unfolded cardboard boxes in order to get close to their subjects. Whether one uses diopters (magnification filters), extension tubes, or a macro lens is not as important as not leaving them behind in the camera bag. Take the extra effort and time to capture those quality images that can be so valuable to bloodstain examiners and to a jury (figures 21, 22, and 23). Impressing a jury with one’s dedication and quality of work will only give more credibility to the investigator when it comes time to testify in court.

Figure 21. Close-up photograph of spent projectile and casing.
Perspective is another issue where the determination of bloodstain directionality can be compromised by the photographer. Stains are not always found on surfaces conducive to easy photographic documentation. Investigators must be willing to reach down and photograph those stains lining the baseboards of a home’s wall or situate oneself perpendicular with those stains found on the ceiling. Tripods are quite helpful in these situations. A mini-tripod or a large tube sock filled with rice can be used to secure a camera at ground level for those photographs found along baseboards (figure 24) and a full-size tripod is useful for guaranteeing a perpendicular relationship to the ceiling. Failing to place the camera perpendicular to the subject can create perspective issues, thus inaccurately portraying the scene as it was found (figure 25).

Photographers and investigators can improve crime scene documentation efforts by understanding how their cameras operate and by appreciating the value of completeness. There is no excuse for taking shortcuts during scene photography. Remember that sitting with a bloodstain examiner or a prosecutor and trying to explain why a picture did not come out or is missing is not an enviable position. By bracketing exposures, adjusting lighting, and considering perspective issues, photographers can demonstrate their competency to investigators and jurors alike. Photographers should also critically review their own work from time to time and seek to
improve areas of deficiency. Individual effort will pay off with quality investigations, improved documentation, and successful presentations in court.

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3. How to Take Good Pictures: A Photo Guide by Kodak by Eastman Kodak Company; Eastman Kodak Company, 1990
5. The Library of Photography by Richard L. Williams; Time, Inc., 1970
RESEARCH ARTICLE

Detecting Blood Patterns in Soil with Luminol Two Years after Deposition

1Adair, T.W., 2Shimamoto, S., 3Tewes, R., and 4Gabel, R.

Introduction

This is the second and final report on a two-year study conducted at the Highlands Ranch Law Enforcement Training Facility in Douglas County, Colorado (USA). The first report discussed the findings of the study through twelve months of observations (1). This report will discuss continued observations between the twelve and twenty-four month intervals. This study began in October of 2004 and was designed to last until October 2006. In the initial experiment six grid units were established on a hilltop at the research facility. Each grid unit measured twenty four inches square and the units were aligned north to south beginning with Unit #1. The grid units were exposed to full sun and other environmental conditions. No shade was available at the site. Five hundred milliliters (500 ml) of horse blood was poured in an “X” pattern in each grid unit during the first week of October 2004. Each arm of the “X” consisted of 250 ml of blood. There were no visible signs of the blood on the surface soil within one week of depositing the blood.

Elevation at the site is approximately 1830m (6000 ft) above sea level and is comprised mainly of gently rolling hills of Gambel oak (Quercus gambelii) with scattered stands of conifer. The site also consists of native grasses and low mesa topography. The site has been controlled by active law enforcement since 1985 and there is no history of blood letting or blood experimentation in the study location. Weather records for the two year study were obtained from the Colorado Climate Center at the Castle Rock station in the city of Castle Rock which was located approximately 10 miles to the south. A total of 33 inches of precipitation fell on the site during the two year study period. This is in line with the annual average of approximately 16.6 inches of precipitation recorded from 1948 to 2005 for the Castle Rock area as reported by the Colorado Climate Center.

Materials and Methods

Every two months the authors tested one half of the grid unit with the Luminol reagent beginning with grid Unit #4. Half of the unit was covered with plastic sheeting at the 14th, 18th, and 22nd month intervals to protect it from overspray. The reagent prepared for all testing sites consisted of both a commercially available kit and a mix of the following formula: .5g 5-amino-2,3-dihydro-1,4-phthalazinedione (Luminol), 25g sodium carbonate, 3.5g sodium perborate, per 500ml distilled water. The Luminol and sodium carbonate is combined in 250ml distilled water and the sodium perborate is mixed in the remaining 250ml of distilled water. Successful photographs of the reactions were obtained using digital cameras such as the Nikon D50, D100, D2H, Fuji Finepix® S7000, and the Fuji Finepix® S20pro. Acceptable exposures were from 10-30sec. at f3.5-f4.0.

1Senior Criminalist, Westminster Police Department, Westminster, CO, 2Criminalist, Lakewood Police Department, Lakewood, CO, 3Laboratory Manager, Fort Collins Police Department, Fort Collins, CO, 4Criminalist, Denver Police Department, Denver, CO
Results:

At the fourteenth month interval the authors found approximately three inches of freshly fallen snow on top of the grid unit to be tested. A small shovel was used to clear off the snow on half the soil surface. The Luminol reagent was applied directly to the soil with immediate and positive results (Figure 1.). At times, vegetation growing in the test grid was cut at the soil surface. This was done to reduce interference of the vegetation with the reagent application and subsequent photography. In the months to follow there was a noticeable, but expected, reduction in luminescence on the soil surface of the grid units. Up to the eighteenth month the surface luminescence became smaller in area. This was due in part to the movement and erosion of the surface soil as well as the leaching of the blood to lower soil levels through dilution by precipitation.

By the twenty fourth month the surface luminescence was only a few square inches in sporadic areas. As discussed in the previous paper it was thought that by scraping off the surface soil a more complete reaction area could be detected. Beginning at the eighteenth month it became necessary to scrape the surface soil to a depth of about ¼”. This minor surface scraping enhanced the reaction area considerably (Figures 2-4). While the scraping did increase the reaction area it simultaneously blurred and softened the edges of the “X” pattern. In addition, blood tainted soil was pulled through areas previously void of blood. While the intensity of the reaction was still stronger in the original arms of the “X”, the areas between the arms created a reaction area over much of the grid unit. The “X” pattern was unrecognizable at the twenty-fourth month although the total reaction area was consistent with the original pouring. At the 24 month interval the authors re-applied the Luminol reagent to all six grid units of the study. These six grid units represent the entire study group for the two year study. The authors achieved
an immediate and strong Luminol reaction in each of the six grid units after minor surface scraping (Figure. 5).

Figure 2. Luminol reaction in grid Unit #4 at the sixteen month interval.

Figure 3. Luminol reaction in grid Unit #5 at the twenty month interval.
Figure 4. Luminol reaction in grid Unit #6 at the two year interval.

Figure 5. Luminol reaction in all six grid units.
On the final night of the study it was decided to dig deeper into the soil to test the depth of the reaction area. Reactions could be found approximately seven inches down into the soil. One interesting observation is that the reaction at this lower level appeared to follow the root structure of the surface plants (Figure 6). Reaction lines traveled both vertically and horizontally. It was unclear if the blood had flowed along the root structure as it penetrated the soil, or if it was actually absorbed by the roots themselves.

![Figure 6. Luminol reaction along plant root lines.](image)

Interestingly, this site is part of a larger study area researching clandestine grave sites under the supervision of NecroSearch International (NSI). Pigs have been buried at various locations across this eleven acre research area since 1986. Some of the burials are nearly twenty years old. Dog handlers for NSI have previously observed their bloodhounds indicating a “hit” on the leaves of Gamble oak above a grave instead of the grave sites below. This occurred several years after burial and it was surmised that the components of the “scent” detected by the dogs had been absorbed by the vegetation surrounding the grave and stored in the leaves. This theory was supported by a forensic botanist in the group. Our observations may give some additional indicators that biological material such as blood can be partially absorbed into plant material from the soil it occupies. Further research will undoubtedly be needed to fully understand and explain these observations.
Discussion

This project confirmed that bloodstains previously treated with Luminol could be detected in soil up to twenty four months following deposition with the Luminol reagent. While pattern detection may have limited value in an investigation (without confirmatory DNA results) it may serve to validate witness or co-conspirator statements of criminal activity. In some cases a negative result may indicate that such statements are inaccurate or misleading. Before reaching such a conclusion however, investigators must develop an understanding of the soil properties in the suspect area. Investigators should also be sure they are testing the correct area prior to concluding a negative result. Similar Luminol studies in these areas should be considered depending on the length of time involved.

The biggest challenge to the investigator will be locating the reaction area with the reagent. Because of the light sensitivity of the Luminol reaction searching will need to be conducted at night. In urban areas it may be difficult to find areas devoid of artificial light. In rural areas investigators may wish to search on a moonless and cloudless night if possible. The application of the reagent is another challenge. Approximately thirty-two fluid ounces of the Luminol reagent was used in each grid unit for both searching and photography. This was a known area with a small defined search area. Searching larger areas may prove to be impractical in both cost and time. The authors have successfully used a large gallon size pump sprayer to apply the reagent over larger areas. Obviously the more one can define the search area the better the likelihood one will find the reaction area.

Investigators may consider employing appropriately trained and bred cadaver dogs to locate areas of interest. These searches are best conducted during daylight with areas of interest marked for a subsequent search with Luminol reagent. The use of a hand held GPS unit may also be valuable in remote areas devoid of adequate landmarks. Once a reaction area is located we recommend obtaining photographs of the surface reactions followed by additional photographs as the soil is scraped away. We also recommend the testing of soil areas near but disconnected from the suspect area. This may help indicate any false positive properties present in the soil. It is hoped that similar studies will be conducted in other areas to better define the Luminol reaction in soil. A similar five year study is planned for the northern Colorado Front Range and results will be periodically reported.

Reference

Purpose. A course of instruction designed for investigators, crime scene technicians, forensic technicians, and others involved in criminal and medical-legal investigations and crime scene analysis. The course is intended to develop a fundamental knowledge of the discipline of bloodstain pattern analysis. The course should illustrate to the student basic principals of bloodstain pattern analysis and the practical application of the discipline to actual casework. The course syllabus is not intended to create an “instant” expert.

Course Objectives. Upon completion of the course the student should:

- Demonstrate knowledge of the development, history and advancement of bloodstain pattern analysis.
- Demonstrate knowledge of the inherent limitations of bloodstain pattern analysis.
- Recognize key bloodstain patterns and understand the mechanism by which they are created.
- Determine impact angles for individual bloodstains.
- Determine a probable point (area) of convergence for a group of bloodstains.
- Demonstrate the ability to combine point (area) of convergence with impact angle to locate the probable point of origin for a given blood spatter event.
- Recognize proper protective measures to follow in a bloodstained scene.
- Demonstrate knowledge of the methods of documenting bloodstain scenes, both photographically and in written format.
- Demonstrate an ability to evaluate a basic bloodstain pattern scene.

Course Length. The course of instruction should be a minimum of forty hours in length.

Course Content. The course should include instruction in the following areas:

I. Introduction to Bloodstain Pattern Analysis. A discussion and lecture designed to introduce the student to the basic tenets of bloodstain pattern analysis, its function and purpose as a forensic discipline, as well as a historical review of its development.

   This section should include lecture directed at:

1. The purpose and function of bloodstain pattern analysis in a modern investigation.

2. The history of bloodstain pattern analysis, including the formation and purpose of the International Association of Bloodstain Pattern Analysts.

3. The application of basic scientific method in bloodstain pattern analysis. To include:
   a. What scientific method entails.
   b. How to develop objective case oriented experiments.
4. A discussion of biohazards associated with bloodstain patterns and the appropriate personal protection techniques.

5. Characteristics of liquid blood and blood droplets under force:
   a. The general nature of liquids and in particular the incompressibility of liquids.
   b. The effects of surface tension on individual droplets and pools of blood.
   c. The effects of terminal velocity on free falling droplets.

6. Characteristics of blood droplets on impact:
   a. The effect of the volume on individual droplets.
   b. The effect of target surface characteristics.
   c. Limitations of determining distance fallen for individual droplets.
   d. The relationship of angle of impact to stain shape.

7. Limitations in bloodstain pattern analysis conclusions.
   a. General conclusion information (consistent, inconsistent).
   b. Impact angle determinations.
   c. Area of origin determinations.
   d. Pattern transfer determinations (consistent v. identification).

II. Recognition and Creation of Basic Stain Patterns. A combination of lecture and practical designed to lead the student through a primarily hands-on process of the cause and effect relationships that exist with regard to the creation of bloodstain patterns.

   This section should include lecture and practical directed at understanding:

1. Passive Stains:
   a. Drip Patterns.
   b. Flow Patterns.
   c. Pools.
   d. Saturation stains.

2. Projected and Impact Spatter stains:
   a. Impact Patterns.
   b. Splashes.
   c. Cast-off Patterns.
   d. Arterial Spurt and Gush Patterns.
   e. Expirated Bloodstain Patterns.

3. Transfer Stains:
   a. Wipe Patterns.
   b. Swipe Patterns.
   c. Transfer/Contact Patterns.
4. Misc. Patterns:
   a. Void Patterns.
   b. Fly Spot Patterns.
   c. Bubble Rings.
   d. Perimeter/Skeletonized Bloodstains.

III. Point (Area) of Origin Determinations. Lecture and practical exercises that lead the student through the process of establishing the probable point (area) of origin for an impact pattern and the various methods available to an analyst to make the point (area) of origin determination.

This section should include at the minimum, both lecture and a pass or fail practical that requires each student to:

1. Evaluate and select appropriate stains for inclusion (considering stain shape, stain location in the pattern, and number of stains).
2. Evaluate and determine the impact angle for a variety of well-formed bloodstains, to an acceptable error level of +/- five degrees.
3. Recognize and determine directionality in a variety of bloodstain shapes.
4. Evaluate and determine point (area) of convergence.
5. Apply “stringing” and/or mathematical methods for point (area) of origin determinations.
6. Understand the limitations of point (area) of origin determinations, recognizing when point (area) of origin determinations are either impractical or impossible.
7. Discuss and if possible use, forensic software designed for making point (area) of origin determinations.

IV. Correlation of Bloodstain Pattern Analysis With Other Forensic Evidence. Lecture and demonstration with examples of how bloodstain pattern analysis must fit with other known evidence, using a holistic approach.

   This section should include at a minimum:

1. The use and limitations of presumptive tests for blood.
2. The importance of identification of bloodstain patterns to a specific source through DNA/Serology technology.
2. The correlation of bloodstain patterns to wound pathology.
3. The sequencing of bloodstain pattern events.

V. Documenting Bloodstain Patterns. Lecture and practical demonstrating current methods of photography, report writing, diagramming and the function of additional enhancement techniques (e.g. luminol).

This section should include:

1. Demonstration of photography techniques, illustrating the use of overall, mid-range and close-up photographs to document bloodstain patterns.

2. Proper use of scale and other photography enhancement devices (e.g. ABFO scales, Roadmapping techniques, stain labeling)

3. General discussion of latent blood visualization using chemicals.


5. General discussion of presenting bloodstain pattern analysis testimony at legal proceedings.

VI. Associated Practical Exercises. The course at a minimum will include the following practical exercises:

1. Stain Shape as a Function of Impact Angle. Production of stains at varying angles between 10-90 degrees on different surfaces. Demonstrating the reproducibility of the various stain shapes and the effect of surface characteristics on those shapes.

2. Diameter of Individual Stains as a Function of Distance Fallen and Droplet Volume. Production of a variety of droplets from various distances and of different droplet volumes and surface characteristics, illustrating the limitations present in evaluating distance fallen.

3. Creation and Causation of Cast-off Patterns. Production of cast-off patterns by various objects. Illustrating the mechanism and limitations in evaluation of cast-off pattern stains.

4. Creation of Impact Spatter Resulting From Blunt Trauma Force. The creation and evaluation of spatter resulting from force associated with physical blows. The practical should demonstrate clearly the correlation of force to spatter size and its effect on: variance in the range of stain sizes for a given pattern, preponderant stain size, and stain distribution.

5. Creation of Impact Spatter Resulting From Explosive Force. The creation and evaluation of spatter resulting from gunshot. The practical should show the correlation between spatter dispersion and source-to-target distance and the differences between forward spatter and back spatter.
6. **Creation of Projected Blood Patterns.** Creation of spurt and gush type stains both on vertical and horizontal targets.

7. **Creation of Transfer Patterns.** The creation of a variety of transfer pattern stains using various objects. Demonstrating the limitations present in the recognition and individualization of transfer patterns.

8. **Creation and Recognition of Blood Trails.** Creation of blood trails under various conditions, showing the correlation of horizontal motion of blood at various speeds to the resulting individual stain shapes.

9. **Drying Times of Blood.** A practical demonstrating the process of blood droplet drying times in relation to stain size.

VII. **Administrative Requirements.** The course should provide or include the following:

1. A pretest designed to test the students understanding of the key objectives.

2. A practical based or written examination process designed to test the student’s comprehension of the key objectives.

3. A course handbook or manual, which describes the practical exercises and provides space for writing notes and observations.

4. The creation of individual standards of key bloodstains patterns, by each student.

5. A certificate of completion describing the dates of training, the number of hours completed, the name of the instructor(s) and the location of training.

6. A course evaluation form, maintained by the instructor.
ABSTRACTS OF RECENT BPA RELATED ARTICLES PUBLISHED IN THE SCIENTIFIC LITERATURE


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.


Abstract:

Blood prints are often found on weapons and objects at crime scenes. In many cases these blood prints require special techniques to enhance visibility. Although there are many reagents and formulations for the development of blood prints, research continues to look for one that will provide optimal results. 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.


Abstract:

In a previous study, mechanical engineering models were utilized to deduce impact velocity and droplet volume of circular bloodstains by measuring stain diameter and counting spines radiating from their outer edge. A blind trial study was subsequently undertaken to evaluate the accuracy of this technique using an applied crime scene methodology. Calculations from bloodstains produced on paper, drywall, and wood were used to derive surface-specific equations to predict 39 unknown mock crime scene bloodstains created over a range of impact velocities (2.2-5.7 m/sec) and droplet volumes (12-45 µL). Strong correlations were found between expected and observed results with correlation coefficients ranging between 0.83 and 0.99. The 95% confidence limit associated with predictions of impact velocity and droplet volume was calculated for paper (0.28 m/sec., 1.7µL), drywall (0.37 m/sec, 1.7µL) and wood (0.65 m/sec., 5.2µL).

Abstract:

Luminol, leucomalachite, phenolphthalein, Hemastix®, Hemident™ and Bluestar® are all used as presumptive tests for blood. In this study, the tests were subjected to dilute blood (from 1:10,000 to 1:10,000,000), many common household substances and chemicals. Samples were tested for DNA to determine whether the presumptive tests damaged or destroyed DNA. The DNA loci tested were D2S1338 and D19S433. Leucomalachite green had a sensitivity of 1:10,000, while the remaining tests were able to detect blood to a dilution of 1:100,000. Substances tested included saliva, bleach, 10% cupric sulfate, 10% ferric sulfate, and 10% nickel chloride. Of all the substances tested, not one of the household items reacted with every test; however, the chemicals did. DNA was recovered and amplified from luminol, phenolphthalein, Hemastix® and Bluestar® but not from leucomalachite green or Hemident™.

Bloodstain Pattern Analysis in the News

Alexei Pace

Presented below are news articles that feature bloodstain pattern analysis. Links are active at the time of writing (mid-November 2006), however they may be put offline after a few weeks. These news items are distributed through the ‘Bloodstain-Patterns’ mailing list and discussion forum, which counts 200 members and to which one may subscribe by e-mailing me at ap@onvol.net. All case details published are as found in the public domain and were acquired through online press websites. The author is not responsible for any misinterpretations by the press however any clarifications, if required, shall be published in the next edition. URL’s are being presented in the tinyurl.com format.

Blood Spatter Evidence Indicates Body Dragged, Pickton Trial Told
Canada.com - Hamilton, Ontario, Canada

Retired RCMP blood spatter expert Jack Mellis said the stain may have been caused by a weapon placed on the mattress, but he was unsure what that weapon may have been. "The staining was from a blood-covered object or possibly a weapon coming into contact with the mattress," Mellis said. Earlier Monday, Mellis said blood patterns inside the motor-home were consistent with a body being dragged from the bloodstained mattress to the motor-home door. Defence lawyer Adrian Brooks asked Mellis why there were only four small blood stains on the hallway of the motor-home when the victim had bled a significant amount on the mattress. Mellis said a towel may have been used to stem the blood flow.

http://tinyurl.com/2dbmdb
Stabbed Mother Clutched Picture - Yorkshire Post Today - Leeds, Yorkshire, UK

The court has been told that Miss Batt was sitting on the sofa peeling potatoes when she and Patchett began arguing. Forensic scientist Gillian Leak, an expert in blood pattern analysis, said that it was as Miss Batt got up from the sofa that she was most likely to have been stuck with the fatal blow. The wound almost completely severed the common carotid artery and spurts of blood landed on a nearby chair.

The 27-year-old would probably have then fallen to her knees and crawled part way across the lounge before collapsing on a rug. Mrs. Leak said that the rug was deeply covered in blood.

http://tinyurl.com/2a38e3

Bloodstain Evidence is Critical
Office.com – USA

Stepping in blood would spread blood to areas not directly involved in the crime, or potentially cover up and obscure the interpretation of other shoe patterns in the blood. Accidentally putting your hand on a bloody wall, even to steady yourself might have disturbed some valuable blood spatter pattern or wiped through a bloody thumb- or palm print on the wall. For these reasons it is highly important for officers in the field to understand what type of information can be obtained from the application of modern blood spatter analysis.

http://tinyurl.com/23843k

'Where's the blood?' White Trial is Asked
National Post – Canada

If Liana White was fatally stabbed in the neck in her bedroom, forensic tests should have detected more blood, says an American crime scene expert. "I'm left with a question: Where's the blood?" Dr. Jon Nordby testified Monday via video-link from his office in Tacoma, Wash. Nordby was testifying in the defence of White's husband, Michael White, who is on trial for the second-degree murder of his pregnant wife. The Crown has accused him of stabbing Liana White in their bedroom, hiding her body, and cleaning up the crime scene. Nordby told the jury blood stains on the bedroom wall may not indicate a stabbing. "The stains on the wall came from sort of impact of a blood source," he said. "Could be a fist, could be a foot, could be a knife - but I would put that low on my list."

http://tinyurl.com/2bd3lm
2007 INTERNATIONAL ASSOCIATION OF BLOODSTAIN PATTERN ANALYSTS ANNUAL TRAINING CONFERENCE

Radisson Hill Country Resort & Spa
San Antonio, Texas

OCTOBER 1-4 2007

Register early & plan on presenting

Hotel Information:

Radisson Hill Country Resort & Spa  (210) 767-5308 Direct
9800 Westover Hills Blvd.  (210) 767-5329 Fax
San Antonio, Texas  78251  (888) 201-1718 Hotel

website: www.radisson.com/sanantoniotx_resort

Room rates:

Single  103.00
Double 119.00
The Second European IABPA Region V 
Training Conference 2008 
Zurich, Switzerland

Wednesday 2 July – Friday 4 July 2008
(pre-registration/welcome drink 1st July 2008)

Journey to Zurich
By plane to Zurich Airport (International/European flights)
EuroAirport Basel (European flights)
From Zurich Airport there is a train to Zurich Hardbrücke → www.zvv.ch (Visitors/english)

Conference hall
Novotel Zurich City-West
(Hotel reservation form → website conference link available from 1st February 2007)

Conference cost (estimate)
Paid by 31 December 2007: CHF 325 / € 200 / $ 250 (incl.coffee break/lunch)
Paid after 31 December 2007: CHF 360 / € 225 / $ 280
On-site registration: CHF 400 / € 250 / $ 310

Accommodation (estimate)
NOVOTEL**** (special price CHF 170 / € 105 / $ 132, double room, excl. breakfast)
(www.accorhotels.com – hotelcode: 2731)

IBIS** (CHF 140 / € 86 / $ 108, double room, excl. breakfast)
(www.accorhotels.com – hotelcode: 2942)

ETAP* (CHF 85 / € 52 / $ 65, single room, excl. breakfast;
1-2 addit. person(s) plus CHF 10 / € 6 / $ 8)
(www.accorhotels.com – hotelcode: 3184)

We invite Speakers to contribute a presentation. Speakers who are interested please contact:
silke.brodbeck@gmail.com

For further information please contact:
www.wissenschaftlicher-dienst.ch
or
sabine.hess@stp.stzh.ch
andreas.schweizer@stp.stzh.ch
Organizational Notices

Moving Soon?

All changes of mailing address need to be supplied to our Secretary Norman Reeves. Each quarter Norman forwards completed address labels for those who are members. Do not send change of address information to the NEWS Editor. E-mail your new address to Norman Reeves at:

norman@bloody1.com
Norman Reeves
I.A.B.P.A.
12139 E. Makohoh Trail
Tucson, Arizona 85749-8179
Fax: 520-760-5590

Membership Applications / Request for Promotion

Applications for membership as well as for promotion are available on the IABPA website:
IABPA Website: http://www.iabpa.org

The fees for application of membership and yearly dues are $40.00 US each. If you have not received a dues invoice for 2007 please contact Norman Reeves.

Note: Apparently, non US credit cards are charging a fee above and beyond the 40.00 membership/application fee. Your credit card is charged only 40.00 US by the IABPA. Any additional fees are imposed by the credit card companies.
April 30 – May 4, 2007
Bloodstain Evidence Institute
Corning, New York

Contact: Professor Herbert Leon MacDonell
Director
P.O. Box 1111
Corning, New York 14830
Tel: 607-962-6581
Fax: 607-936-6936
E-mail: forensiclab@stny.rr.com

♦

May 28-June 1, 2007
Advanced Bloodstain Pattern Analysis and Expert Witness Workshop presented by the Specialized Training Unit at the Metropolitan Police Institute of the Miami-Dade Police Department, Miami, Florida

Contact: Toby L. Wolson, M.S., A-ABC
Miami-Dade Police Department
Crime Laboratory Bureau
9105 NW 25th Street
Doral, Florida, 33172
Tel: 305-471-3041
Fax: 305-471-2052
E-mail: Twolson@mdpd.com

♦

June 11-15, 2007
Basic Bloodstain Pattern Analysis Course
Elmira College
Elmira, New York

Contact: Paul Erwin Kish
Forensic Consultant and Associates
P.O. Box 814
Corning, New York 14830
Tel: 607-962-8992
E-mail: paulkish@stny.rr.com

♦

June 18-22, 2007
Bloodstain Evidence Institute
Parma, Italy
Hosted by the Italian Carabinieri

Instructors:
Herbert Leon MacDonell
T. Paulette Sutton

Contact: Bloodstain Evidence Institute
P.O. Box 1111
Corning, New York 14830
Tel: 607-962-6581
Fax: 607-936-6936
E-mail: forensiclab@stny.rr.com

♦

September 24-28, 2007
Bloodstain Evidence Institute
Corning, New York

Contact: Professor Herbert Leon MacDonell
Director
P.O. Box 1111
Corning, New York 14830
Tel: 607-962-6581
Fax: 607-936-6936
E-mail: forensiclab@stny.rr.com

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Training Announcements for the June issue of the 2007 IABPA News must be received before May 15, 2007
I would like to extend congratulations to Lee Ann Singley on behalf of the entire IABPA as she begins her tenure as the 12th President of our organization. I also thank Bill Basso for his fine job as President during the years of 2002-2006. Congratulations to Craig Stewart from Canada as the new Vice-President of Region IV and Andre Hendrix from The Netherlands as the new Vice-President of Region V.

The initial announcement for the 2007 IABPA conference to be held in San Antonio, Texas October 1-4 appears in this issue of the NEWS. More detailed information will available in the June issue including information regarding possible workshops. Register early and plan on presenting a research paper or interesting case. Also, consider attending the Second European Training Conference to be held in Zurich, Switzerland in July 2008.

There has been an increase in the number of postal returns of the past two issues of the NEWS. Please keep your mailing addresses current with Norman Reeves since he generates the mailing labels for the Nowlin Printing Company in Texas. I maintain a moderate number of past issues of the NEWS. If you have not received recent issues let me know and I will see that they are mailed to you.

As you see, I have included the International Association of Bloodstain Pattern Analysts Bloodstain Pattern Analysis Basic Course Requirements in this issue that was prepared by the Educational committee of IABPA some time ago. This is meant as a guideline for those of you who may be relatively new at instructing basic bloodstain pattern analysis courses. A copy of these guidelines may also be downloaded from the IABPA website at www.iabpa.org.
Past Presidents of the IABPA

V. Thomas Bevel  1983-1984
Charles Edel       1985-1987
Warren R. Darby   1988
Rod D. Englert    1989-1990
Edward Podworny   1991-1992
Tom J. Griffin    1993-1994
Toby L. Wolson, M.S.  1995-1996
Daniel V. Christman  1997-1998
Phyllis T. Rollan  1999-2000
Daniel Rahn       2001-2002
Bill Basso         2002-2006

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