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.

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.

Figure 6. Close-up photograph of toe area of bloodstained shoe with ABFO scale.

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.

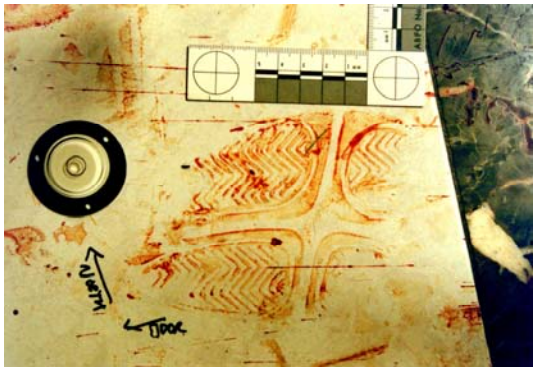

Figure 7. Photograph of bloody footwear impression on floor with compass ABFO scale showing orientation with drawn arrows.

Figure 8. Circular level, ABFO scale and orientation of stain using arrow on floor.

Figure 9. The use of a carpenter's ruler to demonstrate height of bloodstain from surface.

Figure 10. Specific heights of bloodstains further indicated with black marker.

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.

Figure 11. Under-exposed photograph of blood stains on surface.

Figure 12. The same area photographed with an increase of one f-stop.

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 obliterated 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.

Figure 17. Loss of contrast of tire impression due to washout effect of flash.

Figure 18. Shadows as the one seen in the upper should be kept to a minimum. Photograph taken with ambient lighting.

Figure 19. Note the washed out scale in this photograph of an arterial spurt pattern.

Figure 20. A higher quality photograph is achieved with oblique or even ambient lighting.

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.

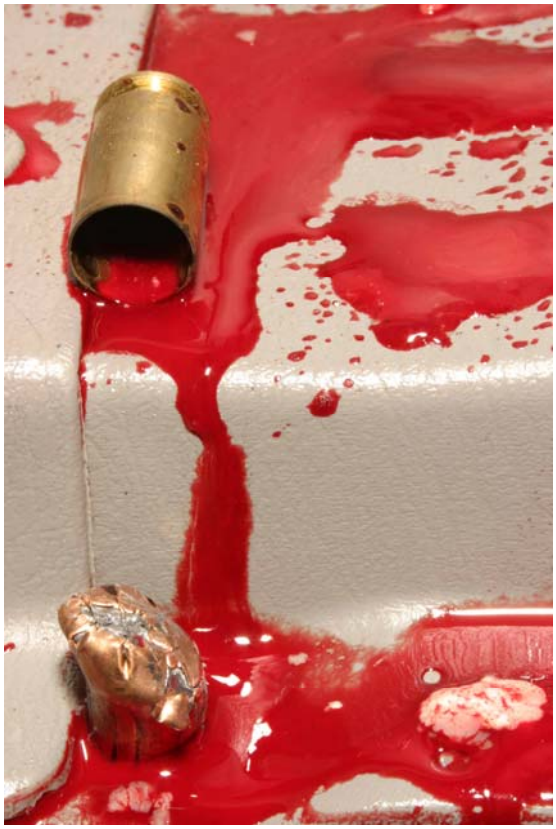

Figure 21. Close-up photograph of spent projectile and casing.

Figure 22. Small stains such as on this arrowhead require close-up photography.

Figure 23. Bloodstain on cigarette butt with close-up photography.

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).

Figure 24. Photograph of bloodstains on baseboard taken at floor level.

Figure 25. Photograph taken with camera not placed perpendicular to the bloodstained area.

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.

References

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