

Preserving Bloodstain Evidence

By

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The value of bloodstain patterns as physical evidence is far more recognized today than it has been in the past. Reconstruction of prior events through the scientific interpretation of bloodspatters has been demonstrated in many recent cases. As example, the author testified in the following homicide cases on the date indicated to establish various facts:

1. 24 January 1977: A run pattern of blood on the trunk of an automobile was inconsistent with a beating as claimed by the defendant. Also, the color of the stain was too red for what was stated to be a previous accident some five and one-half days earlier. (An Ottawa, Ontario case).

2. 4 November 1976: A radiation pattern of bloodstains on a kitchen floor actually originated from a point three to four feet from the location claimed by the victim's husband. Also, and most significantly, the origin was only six inches above the floor, completely inconsistent with his testimony that his wife was sitting at the kitchen table. (A New York State case).

3. 7 October 1976: Bloodstains on the victim's garments demonstrated his movement after he was stabbed but prior to his death. (A California case).

4. 17 September 1976: High velocity impact spatter on the inside of a school bus garage allowed accurate placement of a young woman's head when she was shot. Additional stains showed how the body was moved and loaded into the back of the defendant's pickup truck. Bloodstains on his revolver barrel allowed testimony as to the muzzle-to-head distance at the moment of discharge. The victim has never been found. (An Oregon case).

5. 3 August 1976: Radiation and angular aspects of a bloodstain pattern allowed an estimation as to the location of the victim's head at the moment he was shot. The question was whether or not he was standing or kneeling at the time. (An Alaska case).

6. 17 June 1976: A wide variety of bloodstain patterns resulted from the shooting and beating of four victims. These patterns permitted many typical reconstructions such as the location of victims when they were shot, how and where they moved, and the sequence of certain events. Overlapping patterns also allowed an estimate of the interval between one particular sequence based upon the drying time of blood. (A Florida case).

From these cases (all of which resulted in convictions), it should be evident that **bloodstain** patterns may be of considerable value as an aid to the investigator. In fact, Howard J. McCoy, a Medico-Legal Investigator from Delaware County, Pennsylvania, recently wrote: "It seems unfathomable to me how any investigator could effectively and intelligibly interpret or reconstruct a crime without participating in a program such as your Bloodstain Institute." He referred to the Annual Bloodstain Institute given at Elmira College each summer.

The purpose of this article is to offer advice on the preservation of bloodstain evidence to the end that it may be available for proper evaluation by someone knowledgeable about evidence of this type. There are really only three methods of evidence preservation. These are:

1. **Photography:** Overall scene photos normally are not taken to show bloodstains. Patterns should be photographed for themselves. First, they must be taken perpendicular or normal to the center of the pattern area. A scale of reference should be included that is large enough to be resolved in the final print. Second, if the pattern has stains that show directionally, a string (having contrast over the background) should be taped parallel and very close to several individual spots of blood as shown in Figure 1. If a

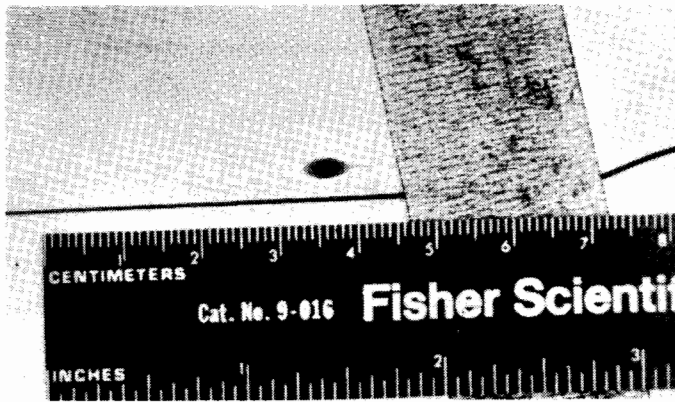


FIGURE 1

convergence is evident, it should be well photographed and measured. In fact, the exact location of many larger bloodstains should also be measured. Third, close-ups or photomicrographs should be taken with a scale of reference. A technique the author has used with good results for many years is to place a strip of double-face Scotch tape on the back of a plastic ruler. In use, the protective plastic strip is removed (and retained) and the ruler is simply pressed against the surface near the stained area as shown in Figure 2.

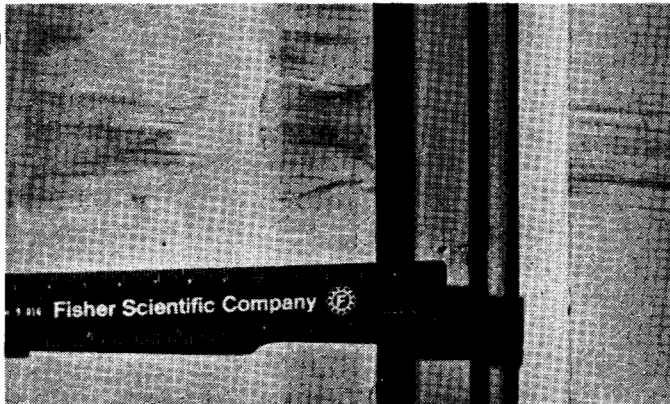


FIGURE 2

After photographs have been taken, the white plastic strip is replaced over the exposed adhesive on the back of the ruler. The same strip of double-face tape may be used many times over even though placed on skin, wood and other porous surfaces. A colored ruler is preferred, since white tends to "wash-out" with flash. (The author recommends Fisher Scientific Co., blue plastic six inch ruler, No. 9-016).

2. Removal: If bloodstains are present on a movable object, it may be best to remove the entire object for a detailed study later in the laboratory. Accurate measurements and photographs should, of course, be taken before such items are removed. Protective coverings of an appropriate type should be used to preserve as many bloodstains as possible. Compre-

hensive labeling must be attached to each item or all subsequent efforts may be in vain. In particular, directionality (North, South, East and West) and vertical (Up, Down) must be included.

3. Lifting: Perhaps one of the best methods available for the accurate preservation and interpretation of bloodstains is simply to lift them after they have been photographed. Ordinary transparent fingerprint lifting tape is quite satisfactory for this purpose. Pressure should be applied directly over each spot to insure a good bond. Naturally, the characteristics of the surface upon which bloodstains are deposited will dictate the success or lifting. Hard, smooth surfaces are best, but porous backgrounds should not be disregarded. Even wallpaper may field good lifts although fibers and even strips of paper may be lifted along with the bloodstains. Lifted **bloodstains** may be transferred to any neutral surface for measurement, evaluation, and photography. Typical lifts from floor tile are shown as Figures 3 and 4. Figure 3 contains bloodstains typical of a beating, whereas those in Figure 4 resulted from higher velocity impact, specifically, gunshot. If bloodstains are lifted from a hard, smooth surface, so there is little, if any extraneous material, the lift can be placed on a clear piece of celluloid. This combination may be placed into a photographic enlarger, along with a transparent ruler, and a negative can be produced by projection onto a sheet of high-



FIGURE 3



FIGURE 4

(Turn page Please)

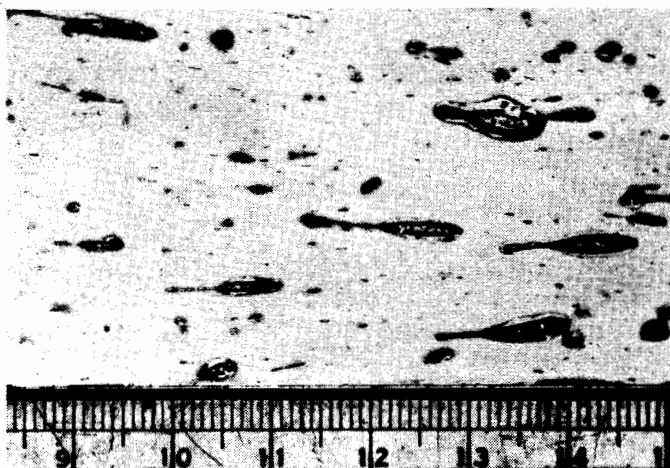


FIGURE 5

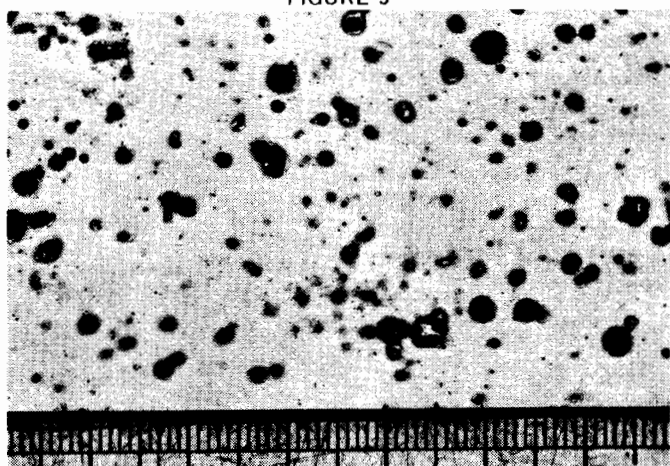


FIGURE 6

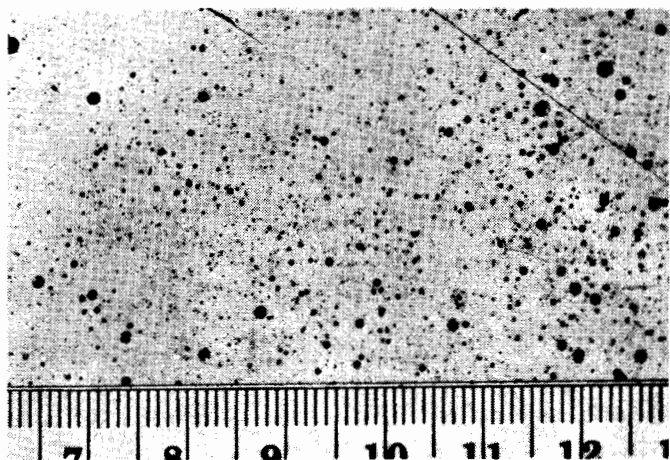


FIGURE 7

contrast film, such as Kodalith. Prints made from such lifts will have exceptional detail as is evident from those prepared in this manner shown in Figure 5, 6 and 7. Again, accurate detailed labeling must accompany each lift so directionality is maintained.

Those who may wish to expand their knowledge of bloodstain evidence interpretation could review the limited literature in this field (1-4). However, attend-

ance at a Bloodstain Institute should also receive serious consideration. For information on these institutes, usually held in June and July, those interested should write to:

**Bloodstain Evidence Institute
Office of Continuing Education
Elmira College
Elmira, N. Y. 14901**

"Hopefully, as investigative personnel become better acquainted with the remarkable results that can be obtained from the use of bloodstain evidence, an increasing number of successful prosecutions can be mounted in what were formerly thought to be hopeless cases," according to Brian L. Pocock, Deputy Attorney General, Eugene Oregon.

REFERENCES:

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3. MacDonell, Herbert Leon, "Interpretation of Bloodstains — Physical Interpretations" — in *Legal Medicine Annual, 1971*, edited by Cyril H. Wecht, New York, Appleton-Century-Crofts, 1971, p. 89-136.
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FIGURE 1. This case-off bloodstain was found on the ceiling near the body of a young woman. Several such stains define an arc which clearly demonstrated the position of the person who beat her to death.

FIGURE 2. After shooting five members of his family, the father carried the body of one of his young sons through this doorway. The bloodsoaked hair of the victim brushed the door casing from left to right, leaving this characteristic "swipe" pattern.

FIGURE 3. Large, medium velocity impact bloodstains that were produced during a beating. These are spatter, rather than cast-off, and radiate from their origin. They were lifted from a tile floor with 1½" transparent fingerprint tape and transferred to a 3" x 5" index card.

FIGURE 4. Small, high velocity impact bloodstains that resulted from gunshot. These stains were lifted from the same general area as those in Figure 3. The victim had been beaten and then shot. Note the very long, thin streaks, evidence that the victim's head was very near the floor when he was shot.

FIGURE 5. Typical medium velocity impact spatter showing directionality. (Can you determine approximately where the origin of this spatter was?) These bloodstains were lifted and transferred to clear plastic to project onto film, as described in the text. Note that the larger bloodstains are encased in air. Should any of these stains ever need to be tested they may be easily removed by simply cutting the tape over the stain with a razor blade or scraper.

FIGURE 6. Medium velocity impact spatter resulting from a beating in front of a mirror. These bloodstains were lifted, transferred to clear plastic, and projected in an enlarger to produce a high contrast negative.

FIGURE 7. High velocity impact spatter resulting from gunshot. A suicide victim shot himself in the head while sitting up in bed. The spray of very fine "atomized" blood struck the front of a small framed photograph that was on the headboard of the bed. The glass was removed from the frame, placed into an enlarger beside a transparent ruler, and projected to make a negative. Note the absence of air bubbles as lifting tape was unnecessary.