

Directional Analysis of Blood Spatter at Crime and Accident Scenes for the Private Investigator

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Blood spatter analysis is an important part of contemporary crime scene investigation and, while not every investigator needs to become an expert at it, every investigator should at least understand the fundamental principles and procedures and be able to correctly record data at the scene for later interpretation by a blood spatter analyst.

A basic understanding of blood spatter analysis will allow the investigator to correctly collect blood stain data at the scene or from photographs of the scene and converse with the attorneys, medical examiner, and blood spatters expert regarding the blood evidence. This understanding is important, because the interpretation of blood spatter patterns and other evidence at crime scenes may reveal critically important information such as:

- The positions of the victim, assailant, and objects at the scene
- The type of weapon that was used to cause the spatter
- The number of blows, shots, stabs, etc. that occurred
- The movement and direction of victim and assailant, after bloodshed began
- It may support or contradict statements given by witnesses¹.

The investigator may use blood spatter interpretation to determine:

- What events occurred
- When and in what sequence they occurred
- Who was, or was not, there
- What did not occur

VELOCITIES OF BLOOD SPATTER

The velocity of blood spatter is that of the force causing the blood to move rather than of the speed of the blood itself; low velocity blood may drip from a wound as a result of gravity, while high velocity blood may be caused by a bullet moving at 900 fps.

Low Velocity

Low velocity stains are produced by an external force less than 5 fps (normal gravity) and the stains are 3mm and larger. It is usually the result of blood dripping from a person who is still, walking, or running, and sometimes from cast off. Dripping blood often falls at a 90° angle and forms a 360° stain when it hits a flat perpendicular surface, depending on the texture of the surface. Spines can be caused by drops repeatedly landing in the same place, by the distance the drop falls, or by the surface upon which the blood lands. Low velocity blood may also be found in the trail of a person who is bleeding and larger pools of blood may indicate where the person paused.