BLOODSTAIN PATTERN ANALYSIS LeeAnn Singley, Grayson Singley Associates, LLC

The loss of blood at violent crimes scenes often produces identifiable patterns which may provide valuable information regarding the actions that caused them. Bloodstain pattern analysis (BPA) then is the forensic discipline which studies the size, shape, distribution and location of these patterns that occur when blood is subjected to a force, in order to determine the mechanisms that gave rise to their origin. Using the underpinning sciences of physics, biology and mathematics, the bloodstain pattern analyst observes, evaluates and identifies bloodstain patterns culminating in a worthwhile evidentiary tool to be used by the investigator or attorney. Having a history of more than 100 years, this discipline is not new; but nonetheless is often still overlooked in a typical investigation.

In its simplest form, BPA can be employed by recognizing and following a blood trail and in more complex situations, can assist in determining the position of a victim in a room during a blood shedding event. The latter may be accomplished through the careful study of the individual bloodstains within an impact pattern by observing their directionality, measuring their size, and determining the angle at which the bloodstains struck the surface through mathematical formulae. The ultimate goal is to determine a three dimensional area of origin of the bloodshed.

In addition to serving as a reconstruction tool, BPA may also be used to confirm or refute statements of actors in the incident under investigation. For example, does the suspect claim the victim was charging him causing him to strike the victim merely in self- defense, when the bloodstain patterns indicate the victim was low to the floor in a crouched position? In addition, are the bloodstains on the suspect's clothing consistent with his alleged actions? Are the stains on his clothing indicative of proximity to a spatter event, when the suspect claims he only "checked on" the victim upon discovering them and immediately called "911"?

It is important to remember that BPA is not limited to use at crime scenes but can be applied to the examination of clothing as well. Careful observations of the stains on clothing and understanding the mechanisms that caused them can assist in stain selection and enhance the analyst's ability to find probative stains useful to the investigation.

Although all aspects of BPA cannot be addressed in this short article, it is important to once again state its value to investigations involving bloodshed. When applied properly and supported sufficiently, it can provide clues that no other area of forensic science is capable of doing. Where DNA analysis assists in answering the "Who?" in an investigation, BPA assists in answering the "How?".

The Northeast Forensic Training Center will be offering Basic (Introductory) Instruction in BPA in the form of a 40 hour hands-on workshop to be conducted November 12-16, 2012. This course is designed to provide the participant with a basic understanding of bloodstain pattern analysis and how it can be applied to investigations. It is appropriate for those wishing to gain a general knowledge of the discipline, such as crime scene investigators, homicide detectives, coroners, forensic biologists and attorneys. It also serves as the foundational coursework for further training in BPA for those wishing to gain expertise in the field.

Please click here to view additional course information.



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