D31 Shooting Reconstruction: The Value of Evidence & Analysis in a Double Homicide

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Attendees will learn about analytical methods used in the reconstruction of complex shooting incidents and in presenting information in trial. This presentation will demonstrate effective methods for producing a shooting incident reconstruction which can be utilized by others in the forensic community.

HYPOTHESIS: Complex and apparently unconnected physical evidence can be effectively utilized to support or refute conflicting versions of a shooting incident.

A double homicide occurred; two victims were shot to death. Two others present at the scene provided conflicting versions of the incident: In this case, there were 12 shots fired; the victims had multiple gunshot wounds with their bodies found in two different locations. Multiple bullet impacts, blood spatter on walls and objects, as well as many additional potential evidence items further complicated the crime scene. The primary issue: Was this a deliberate homicide or multiple acts of selfdefense? The physical evidence, while substantial in quantity, was initially regarded to be of insignificant value in answering the key question.

This paper demonstrates the methodology involved in a multidisciplinary approach to the reconstruction and analysis of a shooting incident in which blood spatter, bullet impact damage, cartridge case locations, and victim wound path evidence from the autopsy, and other elements are all integrated into an analysis which can be used to determine significant facts. These facts can then be utilized to determine what could and could not have occurred and specifically, which version if any — of the incident is consistent with the physical evidence. Although a shooting incident reconstruction always includes the forensic crime laboratory analysis of the physical evidence, an effective reconstruction requires an understanding of the capabilities and dynamic characteristics of firearms, projectiles, ejected cartridge cases, gunshot residue and the dynamics involved in the production and projection of blood spatter from gunshot wounds. A chemical test of physical evidence items provided confirmation of damage caused by bullets which contributed to the overall reconstruction and is an important tool in shooting reconstruction. This case is an excellent example of how all these items can be integrated into an analysis and reconstruction.

An additional important component in the overall reconstruction is the use of 3D computer animation modeling and the graphic enhancement of crime scene photographs. While both were used during the trial in the form of demonstrative exhibits, they were also used in the actual analysis and reconstruction. The detailed and scaled 3D computer model of the house in which the shootings occurred allowed the crime scene to be rotated and viewed at many perspectives which was very helpful in determining both possible bullet trajectories and the trajectories of ejected cartridge cases. This paper will discuss the crime, the methods of the analysis, the reconstruction, and the trial outcome.

Shooting Reconstruction, 3D Computer animation, Crime Scene Analysis

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