Windsor Police Service Case Study: 2009

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Abstract:

This is a case study presented by the Windsor Police Service demonstrating proper methods and procedures used to solve a crime. This is provided to show a real situation in which forensic techniques were required to assist with an investigation. For privacy, individuals other than the officers will not be named or will have substitute names given to them to aid understanding the situation.

Keywords: Windsor Police Service, Amido Black, Leucocrystal Violet, Luminol, Crime, Blue Star

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Introduction

In 2009, the Windsor Police Service was called to investigate the discovery of a male party found lying in an alley with extensive assaultive injuries. The victim was transported to the hospital, however, never regained consciousness and eventually succumbed to his injuries.

Methods

The Windsor Police Service located the residence of the individual a short distance away and subjected it to examination by Forensic Identification Officers (FIO). Officers noted a large pool of blood on the residence and were able to follow a blood trail through the back of the property into the alleyway where the victim had first been located. Subsequently, four different techniques to enhance the blood evidence were used, each dependent on the substrate. These were Amido Black, Leucocrystal Violet, Blue Star, and Luminol.

Amido Black is commonly used to enhance fingerprints in blood as this stain targets the amino acids found within blood and produces a dark blue colouration. This is especially useful because it works well on non-porous surfaces and provides contrast on most surfaces to aid in enhancement of the fingerprint. The officers had chosen to use a methanol based solution because it has higher staining sensitivity, but it must be remembered that methanol can be toxic and caution should be used.

Leucocrystal Violet is used to enhance blood stains that were able to be seen by unaided vision alone. This technique binds with the heme-group found within blood and reacts to form a violet colour. This is normally used on a porous surface or to enhance already visible blood, giving it contrast.

Luminol is used to detect hidden traces of blood. It reacts with an oxidizing agent, in this case blood, and causes luminescence.

Blue Star is a similar product, a more modern and enhanced version of the standard Luminol.

The officers had used various quantities of each technique and applied them in various places throughout the crime scene.

Results

Amido Black and Leucocrystal Violet were used on an exterior garage wall. These techniques had revealed a partial handprint as well as a fingerprint. The fingerprint was later positively identified to the suspect. In addition, a wooden gate nearby was also treated with the same sequence. A partial palm print was developed and was also identified to the suspect.

A bloody fingerprint on the light switch required no enhancement and had a visible fingerprint on it. This was photographed using an alternative light source and subsequently identified as being from the suspect.
Throughout the crime scene the officers had discovered three different classes of footwear evidence. Amido Black and Leucocrystal Violet were used to enhance and contrast the footwear evidence, making it easier to photograph and document.

Luminol was used to enhance the footwear evidence found on a staircase within the house. This would provide evidence of the route taken by the accused. The body of the victim was examined resulting in more footwear evidence being located.

The clothing was treated with Leucocrystal Violet. The class characteristics of the evidence found here was consistent with one of the footwear patterns located on the floor of the residence. Officers were unable to locate any footwear that matched the evidence found throughout the crime scene. Several pairs of shoes were seized and examined, which included not only those of the suspect, but footwear associated to other persons who had access to the scene including first responders. All were eliminated as a source for the crime scene impressions.

Finally, a mountain bike within the property was treated with Blue Star and found to have a reaction. These areas of concern were swabbed for DNA and sent to the Center of Forensic Science.

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