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Pillow 04. Wentzel's notes on weapon imprint analysis and other forensic matters

Cuyahoga County Coroner's Office

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Jim Wentzel

“Weapon” Imprint Analysis on Pillowcase

This series of four experiments was primarily meant to determine whether the imprint observed on the pillowcase was the result of the pillow folded around an object or if the blood-covered object was simply placed on the soaking-type bloodstain. It was quickly determined after the first series of experiments that a wet object placed on a wet bloodstain with and without folding could not be the mechanism that produced this observed pattern. The other three series of experiments introduced, among other elements, extended periods of drying times and further exploration of the random fold theory. The series of experiments (minus the various control pillows) can be summarized as:

1. Pillows 1 - 15 explored a wet tool being placed on a wet stain and folding the pillow around the tool. Various sequences and moderate drying times were explored.
2. Pillows 16 - 30 explored a wet tool being placed on a drying stain and folding the tool around the tool. Extended drying times and various dry-to-the-touch stains were used. Additionally, this series explored blood transfer to the sheet and a wet tool on a wet stain without folding.
3. Pillows 31 - 42 explored random folds with complete drying of the stain.
4. Pillows 43 - 48 explored random folds with extended, but varying drying times.

In conclusion, our experiments revealed that a similar pattern (in visual quality) was obtained by placing a wet object on a stain that was dry to the touch. Additionally, drying had to take place so that blood would not transfer to the sheet. *Transfer of blood to sheet*

Source of Blood “Trail” in the Sheppard Home

This series of experiments was an attempt to reproduce the scientific experiments conducted by Mr. Epstein on Nova. Nova also stated that “At trial, the prosecution claimed that the blood trail came from the dripping murder weapon. They said that Dr. Sheppard himself had carried the weapon, probably on one of his surgical instruments, through the house, dripping along the way, but Kirk knew that was impossible”. Our experiments simply explored the feasibility of producing more than 40 drops of blood in a blood “trail”. We were successful in creating a trail of blood with 123 drops. It is important to note that we did not try to determine if the blood observed in the Sheppard home was indeed a “trail” or if the blood was from a dripping object. We simply demonstrated that it was not “impossible”.

Photographic Analysis of the Scar on the Wrist of Richard Eberling

Photographs taken by the Franklin County Coroner’s Office of Richard Eberling’s wrist were analyzed with digital imaging technology in order to determine if it was possible to compare a scar with Marilyn Sheppard’s fingernail. The wrist photos were not of sufficient quality nor was a scale included in any of the autopsy photographs to allow for a comparison.

Digital Image Analysis of the Wrist Watch

A composite image of Dr. Sheppard's wrist watch was assembled using individual links photographed in 1966. Upon completion of the composite image, remaining intact bloodstains measuring less than 1 mm in diameter were noted. Reference literature indicates that bloodstains of this size cannot travel great distances due to their lack of mass. This places the wrist watch in relatively close proximity to the source of the blood.

Digital Image Analysis of Marilyn Reese Sheppard Crime Scene Photographs

Five images of the crime scene (4 which were definitely taken by Paul Kirk) were digitized and analyzed using modern digital imaging technology. It was demonstrated with Adobe Photoshop and Media Cybernetics Image Pro Plus that it was possible to retrieve usable numeric information regarding the size, shape, and relative positions of 1936 apparent bloodstains on the photographs. This method is more useful, repeatable, and scientific in approach than the methods used by Bart Epstein on Nova.