

MEDICAL ADVISORS, INC

TECHNICAL NETWORK CONSULTING SERVICE®

FORENSIC BALLISTICS

What Can An Expert In Shooting Scenes And Forensic Ballistics Bring To Your Case?

Firearm & Tool Mark Examiner From Pennsylvania

I've yet to encounter a homicide where a careful review of the case file, including investigative reports, scene and autopsy pictures, drawings and all laboratory reports plus the examiner's case notes has not proven useful.

The opposite side usually errs in either placing too much weight on laboratory findings indicating the comparison of items was inconclusive or "could have been", portraying this result as a positive identification.

Your expert would review the tests and corresponding case notes to ensure the work was done to accepted standards. To explain what the tests mean and as importantly what they do not mean.

COMMON TESTS:

Gunshot residue:

- Atomic absorption done by the chemistry section of swabbing taken of individual's hands
- Muzzle to target tests done by the Ballistics section, this can include examination of items not penetrated by a bullet but thought to be in the residue cloud
- Scanning Electron Microscopy, the examination of discrete swabbing by SEM This examination is done at the molecular level. The test is very useful as there is no confusion as to a particle being gunshot residue.

Identification:

- Comparison of bullets and cartridge cases recovered from a body, scene or a combination to determine if they were discharged in or from a common firearm, different firearms and what firearms are capable of discharging them. Additionally, a cartridge found at a scene and a firearm recovered at some later date and place can be tested to determine if the cartridge had been chambered in and ejected from it. The same would be true of ammunition recovered at the scene as well as that recovered from searches etc.

Distance Determination:

- GSR used for muzzle to target distances. "Residues" are useful to a distance of several feet.
- Shotgun patterns are used for distance determination.

Shooting Scene:

- A determination of the angle the shot(s) were discharged from is useful to locate a shooter's position. This is also useful to determine where shots could not have originated from.
- The geometric interpretation of bloodstain patterns is used to the same goal. The resultant type of bloodstain, "High Velocity Impact Spatter", is unique to high velocity events such as gunfire.
- The location of discharged cartridge cases and the subsequent ejection pattern of the evidence firearm are useful in locating a shooter or shooters and discerning movement of a shooter. Cartridge cases do not bounce about like basket balls although they may be moved or picked up. The location of and the ejection pattern of a given firearm, rifle or shotgun are important facts in any shooting investigation.

Technical Network Consulting Service produces expert witnesses for attorneys and insurance companies coast to coast as well as internationally. Working with our extensive database, we are "Your Link to America's Most Qualified Experts". Our trained staff specializes in finding qualified scientific, technical and engineering witnesses in your geographical area. A detailed telephone consultation explores all aspects of your case. This simplifies the job of finding the right expert.

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The ammunition:

- Certain types of ammunition are unique to a given manufacturer. An example is many think Brass colored jackets are unique to Remington brand Golden Saber Cartridges. It's not; Mag-Tech and Focchi also produce ammunition with brass or brass colored jackets.

The care and feeding of your expert:

- The earlier you involve the expert the better they can serve your case. This can be useful in providing questions for preliminary hearings and items to have your investigator aware of as they follow leads and interview individuals.

What have I seen in cases?

- The most common error is the investigators will posit a theory of the incident and then remain blind to any fact not fitting their theory.
- The second most common failing is to not submit evidence to the laboratory or the laboratory not conducting exams. The defense expert shouldn't be the first one looking at bullet holes in the garments worn by the deceased
- The third is investigator's are always in a hurry and "burn bridges" in a rush to make an arrest. Evidence not identified and gathered is a common event.
- Experience suggests the desire to make a prompt arrest will over ride proper investigative techniques and becomes an end instead of a full and complete investigation.
- The nearly mythical faith placed in "the high tech exam". A recent homicide had the pistol being tested for DNA evidence, but neglecting to submit the recovered discharged bullet and cartridge case to determine if they had been discharged from that pistol.

I hope this memo will prove of value to you in your casework.

Respectfully submitted,
Frederick M. Wentling
Firearm & Tool Mark Examiner

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