**The Birth of Ballistics: The Bullets of Valentine's Day**

When smoothbore pistols and muskets were replaced in the late 18th century by rifled weapons, spent bullets acquired a distinct signature. The process of making grooves in rifles for more accurate projectiles meant that they would leave a mark on the softer metal of the bullet as it spun through the barrel. Because of the wearing of the machines that made them, any bullet fired from a specific weapon will bear the same distinct markings. When bullets were then encased in cartridges, even more marks were made, helping investigators make a match between a bullet and a gun.

Firearms evidence identification matching bullets to guns was born in 1835 in England when the unique ridge on a bullet taken from a victim was linked with a bullet mold in the suspect's home, exposing a burglary as a fake. The first time an expert proved in court that a specific gun was used for a murder was in America in 1902. Oliver Wendell Holmes had read a book about firearm identification, so he called a gunsmith to test-fire the alleged murder weapon into a wad of cotton wool. He then used a magnifying lens to match marks on the bullet from the victim to the test-fired bullet, and these he showed to the jury. It was a firearms case, the St. Valentine's Day Massacre on February 14, 1929, that led to the opening of the first independent scientific crime detection lab in US. Seven men were waiting at10:30 a.m. in a red brick warehouse on Chicago's North Side, at 2122 North Clark Street. Three men wearing police uniforms and two civilians arrived in a police car and went inside. Witnesses heard multiple gunshots made by machine guns. Then the police left and a dog in the building began to bark. Neighbors checked and found seven unarmed men lying on the floor, all shot in the back multiple times.

The victims were associates of mobster George "Bugs" Moran, Who pointed the finger at Al Capone. People thought the police killed the gang in cold blood, so it was left to firearms comparisons to unearth the true story. The shooters left behind 70 cartridge casings and the weapons were identified as .45-caliber Thomson submachine guns.

Goddard and Wait collected data from all known gun manufacturers to develop a database. They catalogued the results of the test fires from each type of gun to form one of the most comprehensive collections of information about guns. At the time, there were 12 known handgun manufacturers. Waite died in 1925. Goddard took over the work, and was responsible for creating the science of ballistics.

With the invention of the comparison microscope, two objects could be laid side-by-side for high-powered comparative examination. Bullets could be laid out to show whether there was a match in the markings that a gun would leave on them after they were fired from that gun. That made for a controlled examination, which was needed as a defensive weapon against the increase in crime during the 1920s.

When the seven bullet-ridden bodies were found in the Chicago warehouse on St. Valentine's Day in 1929, it was just a matter of finding the murder weapon. Goddard came in from NY and fired each of the eight machine guns owned by the Chicago police. He then compared the results to evidence collected at the scene. No casings matched, which cleared the police. That meant that someone had impersonated police officers to commit the murders. Ten months later, the police raided the home of a hit man for Al Capone. They found two machine guns, which they gave to Goddard. He test-fired them and proved they were the weapons used in the massacre. That sent at least one of the killers to prison.

The infamous incident turned out to have been part of a gang war between Capone and Moran. Evidently the men had been lured there—and Moran was supposed to have been among them—by a call from Detroit indicating that a truck full of hijacked whiskey was coming in. Moran himself was late, and he just missed being victim number eight. In fact, he had spotted the police car outside the warehouse and left.

Goddard's work inspired two businessmen to set him up at Northwestern University in Chicago in the first independent crime lab in the country. Ballistics, fingerprinting, blood analysis and trace evidence were brought under one roof and the lab became a prototype. Science and the police were united. Goddard then advised the FBI in 1932 when they set up a similar criminological laboratory. Their first piece of equipment was a comparison microscope.

**QUESTIONS**

1. How are bullets matched to guns? Explain.
2. What did Calvin Goddard and Charles Waite do that was important in Ballistics?
3. What is a comparison microscope and how does it work?
4. How did Ballistics solve the St. Valentine’s case?