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Jurors Perceptions of Forensic Evidence

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# As Seen On TV: Jurors Perceptions of Forensic Evidence



Hon. Brian P. Stern Associate Justice, RI Superior Court<sup>1</sup>



Scott L. Rubins, M.A President, Forensic Futures Education Group

We found the defendant not guilty because we wondered why a gun residue or trajectory analysis was not conducted to determine who fired the gun and the path of the bullet. Isn't that what the police are supposed to do in every case? (ACTUAL CASE QUOTE)

#### Introduction

There is little argument television and other forms of media impact our society. This impact is not just apparent in influencing a person's decision to purchase a laptop or deciding on a political candidate, but also influences people's perception of a criminal court case.<sup>2</sup> Media has strongly romanticized courts of law and makes technology seem more accessible and flawless than it may actually be.3 It is hard to ignore that potential jurors watch crime dramas on television. Additionally, the majority of jurors have not had previous experience with the criminal justice system before reporting for jury duty.<sup>4</sup> To prosecute or defend a criminal matter effectively, an understanding of what is being portraved on crime dramas, the field of forensic science, and the common types of forensic evidence is necessary.

#### History of the Crime Drama

Beginning with radio, and stretching throughout the history of television, there have been crime dramas. The television show Dragnet,<sup>5</sup> first began as a radio show in 1949 using actual cases from the Los Angeles Police Department. Crime dramas became more popular when introduced to television. In the 1950s, Perry Mason<sup>6</sup> taught us the most effective way to prove the guilt of a criminal defendant was to ask them enough tough questions until they confessed on the witness stand. In the 1970s, Colombo's7 Peter Falk would question a witness and have no success. However, after a pregnant pause, he would ask one final question and crack the case. On the original Hawaii Five-O8 viewers could count on the catchphrase "Book 'em, Danno,"

before the end of the show, after the crime was solved.

Entering the 1980 and 1990s, a new type of crime drama was introduced. These stories were ripped from the headlines like those in *Law* & Order,<sup>9</sup> where a crime occurs in the first few minutes of the show, is investigated by the police during the next half hour, and, in the final ten minutes, the accused is prosecuted and convicted by the jury or pleads guilty to the crime.

During the past ten years, recent crime dramas have the aspects of the earlier shows, but with technology on steroids. In shows like *CSI*, the investigation and prosecution are based on solving crimes to a legal and moral certainty with science. DNA, facial recognition, and chemical tests are introduced within days or weeks of the crime and shown to the jury. In most episodes, solving the crime is complex and difficult, but, in the end, the jury always knows they convicted the right person.

#### Beyond a Reasonable Doubt

Jurors are instructed in criminal cases that, to find the defendant guilty, the prosecution must establish the elements of the crime beyond a reasonable doubt. In the seminal case, **In the Matter of Samuel Winship**, 397 U.S. 358 (1970), the United States Supreme Court held that the reasonable doubt standard has a constitutional stature. The reasonable doubt standard is a prime instrument for reducing the risk of convictions and the loss of liberty resting on factual error. It is indispensible, for it impresses on the trier of fact the necessity of reaching a subjective state of certitude of the facts issue and to command the respect and confidence of the community in the applications of criminal law.<sup>10</sup>

While juries are instructed to apply the reasonable doubt standard when determining the guilt of a criminal defendant, there is not an explicit definition of reasonable doubt. In 1994, the United States Supreme Court had the opportunity to clarify the reasonable doubt standard in Victor v. Nebraska, 114 S.Ct. 1239 (1994). The Court did not prescribe any specific wording to be used by a trial judge, but, rather, outlined elements that should be included: 1) the standard is inextricably intertwined with the presumption of innocence; 2) the burden of proof rests with the prosecution and never shifts to the accused; 3) a reasonable doubt is based on common sense and not upon sympathy or prejudice; 4) it is logically connected to the evidence or lack of evidence; 5) it does not involve proof to an absolute certainty; and 6) more evidence is required than the accused is *probably* guilty.11

Due to the lack of precise guidance regarding the beyond a reasonable doubt standard, the individual juror's background and experience become vital when making their determination. Given a normal juror's experience with television crime dramas, they may be lead to believe the prosecution must demonstrate, in every case, the defendant's guilt with scientific and/or technological means. It could also lead them to decide the criminal defense attorney is required to present its own scientific evidence and/or expert testimony in every case to rebut evidence submitted by the prosecutor. Regardless of what the jurors decide, some of them will end up giving more weight to scientific evidence because they are used to seeing it on television where it is generally dispositive.12

#### What is Forensic Science?

The word forensic comes from the Latin *ferensis*, meaning "on or before the forum." Today, the field of forensic science encompasses a broad range of scientific disciplines including: toxicology, pathology, and biology, each with their own set of technologies and practices. Science, as it is related to the law, is most commonly used to define forensic science, but does not really provide the depth and breadth this field deserves. Forensic scientists, or Criminalists, investigate and process firearms, fire debris, blood, DNA, and controlled substances. Through this process, Criminalists do not just examine and process specific evidence to solve a crime, but endeavor to gain an understanding of the methodology of the crime.

#### **Reliability of Forensic Science**

DNA, toxicology, fingerprints, trace evidence, blood spatter, firearms, hair, fibers, and arson are common fields of forensic science testified to in court. Some have been around for hundreds of years, while others are relatively new.<sup>13</sup> But, does the length of the field's existence mean it is reliable in a court of law? It is not possible to cast a broad net. stating that all forensic science is reliable or unreliable. For each type of forensic evidence, it is critical to understand the reliability of the methodology used to determine the scientific facts, the background, training, and experience of the forensic scientist, and the correlation of the scientific facts to the opinion the forensic scientist expresses at trial.

There are certain types of forensic evidence, such as DNA, that will produce a result with a high degree of certainty for a particular piece of evidence so long as issues such as the method of collection, chain of custody, maintenance and calibration of the scientific instrumentation are verified.<sup>14</sup> Other forensic evidence, such as bite marks, firearm evidence, tire impressions, fingerprints and forensic odontology<sup>15</sup> have been criticized by some because they have not been exposed to stringent scientific scrutiny. A 2009 report issued by the National Academy of Science provides a comprehensive overview of the state of forensic evidence at the time. Reports such as these, while important to the evolution of the discipline, are the opinion of the issuing body and are open to interpretation and subsequent changes to the field.16

#### **Analytical Sciences**

Analytical-based sciences are those that some might consider to be the hard core sciences, those where instrumentation provides a definitive answer. Whose DNA was on the rim of the water bottle? What drug does the baggie contain? What was the driver's blood alcohol level? Criminalists analyze this evidence in labs where they have set procedures for processing, documenting, and evaluating this



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type of evidence. Their instrumentation is calibrated at regular intervals, and there are usually proficiency exams to ensure the Criminalists are competent.

#### **Interpretive Sciences**

No less important than analytical sciences, interpretive sciences are subject to a greater degree of human interpretation. A large majority of scientific evidence brought to trial is of this nature including, fingerprints, firearms identification, and shoe impressions. Criminalists evaluating evidence have to determine if fingerprints are from the same source or if a bullet came from the recovered gun. This type of evidence is only as reliable as the human providing the interpretation. From a scientific perspective, some areas of interpretive science are the subject of standards and extensive scientific peer review, while others have been criticized.17 Criminalists who perform these tasks are frequently subject to proficiency exams to assure they are competent to provide accurate reports to the courts.

#### Types of Forensic Evidence Fingerprints

Fingerprints, palm prints, and sole prints have been used to identify people

for more than a century in the United States. Collectively, the analysis of these prints is known as friction ridge analysis, which consists of experience-based comparisons of the impressions left by the ridge structures of volar (hands and feet).<sup>18</sup> A common misconception is that anything you touch will leave a fingerprint that can identify you. The reality is, at many crime scenes, there are no fingerprints, and, even if there are, they might not be usable. This is because fingerprints require a good surface on which to deposit. Hard, smooth, non-porous surfaces, such as glass, are considered the ideal material for a fingerprint. As you deviate from that ideal surface, bumpy, sandpaper-like, porous, the less likely you are to visualize a fingerprint. Movement can also affect whether or not a fingerprint will be usable. As an individual moves their fingers, the prints begin to smudge. Sometimes this leaves a print that is completely unusable, other times it leaves behind what is known as a partial print.

When an examiner evaluates a print, everything about the print must be taken into account. The type of surface on which it was found, how it was visualized and collected, its quality as a fingerprint, and its viability for examination and comparison. Friction ridge examination is considered an interpretive science.

#### **Firearms Investigation**

Firearms investigation is commonly thought of as matching a bullet from a crime scene to the gun of a suspect. When a bullet leaves a gun, markings known as grooves, lands, and striations are impressed onto the sides of the bullet. The grooves and lands cause the bullet to spin so it flies straight and accurately hits its target. Grooves and lands can sometimes be used to identify the type of weapon from which it came. These are known as the class characteristics. Class characteristics are common traits shared by more than one object, such as the tread on a specific brand of sneaker. The striations - small fine scratches - are a product of the rifling process and provide the bullet's individual characteristics. Individual characteristics are unique and random markings that allow us to link evidence to a single source, similar to a nick or tear in a specific location on the bottom of a sneaker. If both the bullet and the suspect gun are in good condition, it is possible to individualize a bullet to the gun.

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To individualize a bullet to a specific gun, the firearms examiner will fire a new bullet from the same gun into a water tank. Next, the examiner will use a comparison-microscope to compare the two bullets' markings. First, the grooves and lands are examined, and, if they match, then the striations are examined. The striations are like a fingerprint and, with a microscope, can be superimposed upon each other to demonstrate they came from the same source.

The science of firearms investigation extends beyond mere comparison of bullets to include knowledge of the operation of all types of weapons, restoration of obliterated serial numbers on weapons, detection and characterization of gunpowder residues on garments and around wounds, estimation of muzzle-to-target distances, and detection of powder residues on hands. Firearms investigation is an interpretive science.

#### **Biological Evidence and DNA**

Biological evidence is provided by specimens originating from a living organism available in a forensic investigation. Such specimens may be found at the scene of a crime on a person, clothing, or weapon, and some biological evidence comes from the environment, animals, and plants. Other biological evidence comes from specimens obtained directly from the victim or suspect, such as blood, saliva or sweat.<sup>19</sup> Many of these are common sources for DNA collection, nuclear DNA specifically, which is quite valuable in associating evidence to a specific individual with a high degree of certainty. More than 99% of our DNA is the same. However, the amount that individualizes each of us is less than  $1\%^{20}$ 

Locating biological evidence at a crime scene is not as easy as crime dramas on television make it appear. If there is blood on the floor or a wall at a crime scene, locating the evidence is easy. However, evidence such as semen, saliva and blood may not be readily visible. In some cases, investigators rely on swabbing multiple locations to find possible samples. Other times, they use an Alternate Light Source (ALS), which allows a monochromatic beam of light, usually a laser, to shine on evidence and cause certain body fluids to fluoresce. Sometimes chemicals, such as Luminol or Blue Star, that glow in the presence of blood proteins are sprayed. Other times, crime scene investigators are able to locate DNA from items simply

touched by an individual, such as a steering wheel of a car or the slide or grip of a gun.<sup>21</sup> This method is known as low copy or touch DNA testing, and, in many cases, is more successful in identifying suspects than fingerprints. Once the DNA evidence is obtained, it is prepared for analysis in the lab. This analysis usually takes a few weeks, unlike the television shows, which have complete results in ten minutes.

Nuclear DNA testing is most commonly performed in labs through what is known as Short Tandem Repeat (STR). STR tests for 13 or more loci, these loci are used so the probability of two people matching all of them would be miniscule. Comparison of these samples can be made using the FBI DNA database known as Combined DNA Indexing System (CODIS). CODIS houses three databases: convicted felons; unidentified persons; and profiles generated from crime scenes. The DNA sample is run against each of the databases with hopes of identifying an individual. When the Criminalist testifies there is a DNA match, they are testifying the *frequency* of occurrence of that DNA is so high, the probability of it being someone else barely exists. DNA is an analytical science.

#### Addressing Juror Expectations

Judges, prosecutors, and defense counsel must adapt to, rather than fight against, the modern juror. The parties should address these issues during their trial preparation and as part of their *voir* dire examination. Counsel can pose targeted questions to help identify biased jurors and educate the jury panel about the dangers of using crime show dramas in their consideration of the case.<sup>22</sup> Some areas of inquiry include: 1) making the distinction between the cases depicted on crime dramas and the case before the court; 2) can the juror convict, even if evidence they would see in a crime drama is not presented?; (3) does the juror understand that some of the tests and investigation procedures used on television may not even be possible in real life?"<sup>23</sup>; and 4) that although the juror cannot consider as evidence what they see on television, can they still consider the evidence or lack of evidence presented at the trial?

The judge may also act as the gatekeeper of the evidence during the trial. The trial judge should carefully consider whether or not a forensic witness would

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be allowed to give expert or opinion testimony. The trial judge may require testimony, outside the presence of the jury, to determine whether or not the methodology is adequate for the expert to express an opinion to the jury on a particular issue within his or her expertise.<sup>24</sup>

The parties may request, and the trial judge may craft jury instructions that directly address forensic evidence. These instructions should direct jurors to use only the standards articulated by the court to weigh the evidence, not standards they've learned from television or other sources outside the courtroom.<sup>25</sup>

#### Conclusion

When the 6th Amendment was ratified in 1791, the nation was drastically different than it is today. There were no telephones, no radios, no televisions, and no internet. Juries of the time did not face the barrage of media influence a contemporary jury faces on a daily basis.

The recent popularization of *CSI* and similar dramas has increased the public's exposure to forensic evidence. As these shows become more popular, their portrayal of forensic evidence as an infallible truth propagates as well. It is, therefore, very important that courts and the other participants in a criminal trial, encourage jurors to think critically and to process information presented at trial without bias, to ensure the portrayal of forensic evidence in the media does not unduly influence their analysis when reaching a verdict.

Without this division of fact from fiction, a jury may let someone go free who has committed a crime, or worse, convict someone of a crime they did not commit. While studies have indicated that this *CSI* Effect may not be an absolute, it remains critical for the preservation of our criminal justice system that jurors are educated on the true value of evidence; not by the cast of *Law & Order*.

#### **ENDNOTES**

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 JURORS 24/7: THE IMPACT OF NEW MEDIA ON JURORS, PUBLIC PERCEPTIONS OF THE JURY SYSTEM, AND THE AMERICAN CRIMINAL JUSTICE SYSTEM by Nicole L. Waters, Senior Research Associate, National Center for State Courts and Paula Hannaford-Agor, Director, Center for Jury Studies, National Center for State Courts.
 Journal of Criminal Justice and Popular Culture, 10(2) (2003) 109-126, MEDIA CONSUMPTION AND PUBLIC ATTITUDES TOWARD CRIME AND JUSTICE: THE RELATIONSHIP BETWEEN FEAR OF CRIME, PUNITIVE ATTITUDES, AND PERCEIVED POLICE EFFECTIVENESS, Kenneth Dowler, Department of Criminal Justice, California State University at Bakersfield.

4 http://www.americanbar.org/content/dam/aba/ migrated/publiced/practical/books/family/chapter\_1 4.authcheckdam.pdf.

<sup>5</sup> Dragnet, Jack Webb, Creator, NBC, 1949-1951 (radio), 1951-2004 (television).

6 Perry Mason, Erie Stanley, Creator, CBS, 1957-1966.

7 Columbo, Richard Levinson, Creator, 1968-1978 (NBC), 1989-2003 (ABC).

8 Hawaii Five-O, *Leonard Freeman*, *Creator*, CBS, 1968-1980.

9 Law & Order, Dick Wolf, Creator, NBC, 1990-2010.

10 In the Matter of Samuel Winship, 397 U.S. 358, 363-364 (1970).

 Victor v. Nebraska, 114 S.Ct. 1239 (1994).
 Hon. Donald E. Shelton, Juror Expectations For Scientific Evidence in Criminal Cases: Perceptions and Reality about the "CSI Effect" Myth, 27 T.M. Cooley L. Rev. 1 (2010).
 John Perritano, Science Beats Crime 6 (2011).

14 Committee on Identifying the Needs of the Forensic Sciences Community National Research Council, Strengthening Forensic Science in the United States: A Path Forward, (2009), 100.
15 The process by which dentists attempt to match marks found at crime scenes with dental impressions of suspects.

16 Giannelli, Paul C., The 2009 NAS Forensic Science Report: A Literature Review (April 12, 2012). 48 Crim. L. Bulletin 378 (2012); Case Legal Studies Research Paper No. 2012-11. Available at SSRN:

http://ssrn.com/abstract=2039024. 17 Ibid.

18 Committee on Identifying the Needs of the Forensic Sciences Community National Research Council, Strengthening Forensic Science in the United States: A Path Forward, 136.

19 Other biological evidence could also come from vaginal secretions, semen, epithelial cells, vomitus, feces, urine, hair, tissue, bones, and microbiological and viral agents obtained directly from the victim or suspect.

20 Committee on Identifying the Needs of the Forensic Sciences Community National Research Council, Strengthening Forensic Science in the United States: A Path Forward, 170.

21 Common places to find DNA evidence include but are not limited to: the handle of baseball bat or pipe, a cigarette butt, eyeglasses, a bullet that has passed through a body and a door handle.
22 Tamara F. Lawson, Before the Verdict and Beyond the Verdict: the CSI Infection within the Modern Criminal Jury Trials, 41 LYUCHILJ 119, 143.

#### 23 Ibid., 154.

24 The Court may consider: (1) whether the proffered knowledge has been or can be tested; (2) whether the theory or technique has been the subject of peer review and publication; (3) whether there is a known or potential rate of error; and (4) whether the theory or technique has gained general acceptance in the scientific community. Morabit v. Hoag, 80 A.3d 1, 12 (R.I. 2013). 25 Ibid. ◆ MIGNANELLE ASSOCIATES, LTD.



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