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The Real CSI: Forensic Science

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Attorneys, investigators and educators have felt the impact of television's popular forensics programs

CSI: REALITY

By Max M. Houck

Forensic science has been the backbone of mystery stories from Edgar Allan Poe's Dupin adventures to Sir Arthur Conan Doyle's Sherlock Holmes tales to Jack Klugman's *Quincy* television series to today's wildly successful forensics shows. Holmes's methods presaged many actual techniques for linking physical evidence to the perpetrator of a crime, such as blood testing. Forensic sciencewas codified as a profession in the early 1900s and exploded into the public consciousness in the 1990s with the advent of DNA analysis. Forensics has never been more popular or popularized: eight crime dramas, including *CSI: Crime Scene Investigation* and its sibling pro- grams, made it into the top 20 shows last Octo- ber. On one Thursday that month, 27 percent of all American televisions that were turned on were tuned to *CSI*. On cable, CourtTV's *Foren- sic Files,* a documentary-style series featuring real crimes and real scientists, airs four days a week. Such programs give the impression that forensic laboratories are fully staffed with high- ly trained personnel, stocked with a full comple- ment of state-of-the-art instrumentation and rolling in the resources to close every case in a timely fashion.

The gap between public perception and reality, however, is vast. And the popularity of these shows has led to complaints of a "CSI effect": at least some lawyers and judges have the impression that jurors schooled on *CSI,* which has been on the air since 2000, now demand unreasonable levels of physical evidence in trials. Whether the CSI effect truly exists as a quantifiable influence on courtroom behavior is still a subject of debate. Of no debate, though, is the effect that the CSI programs have had on the activities of police, who now collect more pieces of physical evidence than ever before; in academia, where some forensics programs are growing exponentially; and in overburdened working laboratories, which are a far cry from the glitzy, blue-lit analysis palaces of TV.

The Effect in the Courtroom

In one of this season's episodes of *CSI,* the plot included a television crew recording the activities of the fictional crime scene investigators. Lead researcher Gil Grissom rebuffs the TV crew's attempts, saying, "There's too many forensics shows on TV." Numerous attorneys and judges who believe that jurors are afflicted with the CSI effect would agree. But to what extent do *CSI* and its relatives influence the expectations that jurors bring to trials?

The press started to pay attention to the issue in 2003, collecting anecdotes from attorneys and judges about what appeared to be a change in the behavior of jurors. In 2005 Oregon district attorney Josh Marquis, vice president of the National District Attorneys Association, told *CBS News,* "Jurors now expect us to have a DNA test for just about every case. They expect us to have the most advanced technology possible, and they expect it to look like it does on television." Indeed, jurors in a Los Angeles murder case complained that a bloody coat had not been tested for DNA, even though such tests were unnecessary: the defendant had already admitted to having been at the crime scene. The judge noted that TV had taught jurors about DNA tests but not about when they should be used. In a study in Delaware of how juries deal with evidence, one juror tangling with a complex DNA case complained that these kinds of problems did not happen "on *CSI*." Attorneys blamed the CSI effect when a Baltimore jury acquit- ted a man of murder—testimony from two eyewitnesses was trumped by a lack of physical evidence. "I've seen a big change in jurors and what they expect over the last five years," defense at-

PAUCITY OF PHYSICAL EVIDENCE led to acquittal of actor Robert Blake (*shown kissing his attorney after the verdict*) in the murder of his wife, Bonny Lee Bakley, in 2001, despite Blake's having motive and opportunity. His attorney holds Blake's ankle monitor aloft. In a subsequent civil case, Blake was found liable for the wrongful death.

CSI effect: not guilty by reason of TV?

torney Joseph Levin of Atlantic City, N.J., told a local newspaper. "Jurors can ask questions of the judge while in deliberations, and they're asking about what they see as missing evidence. They want to know where the fingerprints are or the DNA. If it's not there, they want to know why." In the California murder trial of actor Robert Blake, prosecutors tried to persuade the jury by establishing Blake's motive and opportunity, and they presented witnesses who testified that Blake asked them to kill his wife. But no gunshot residue or blood spatter evidence was presented, and Blake was acquitted. A juror was quoted as saying that if the prosecutor "had all that information, that would have meant [Blake] was guilty." The defeat was the prosecutor's first in 50 murder cases.

Before *CSI* became popular, attorneys mostly worried about whether a jury was going to understand the complexity of DNA evidence. Now, though, many spend time clarifying the difference between television and reality—it is common for lawyers to ask prospective jurors about their exposure to forensics-themed TV programs. And some prosecutors are attempting to preempt any potential fallout from the CSI effect. In trials in Arizona, Illinois and California, they have put so-called negative evidence witnesses on the stand to alert jurors to the fact that real-life detectives often fail to find physical evidence, such as DNA or fingerprints, at crime scenes.

Several legal experts have argued, however, that the CSI effect may be illusory. The newspaper that quoted Atlantic City lawyer Levin also noted that Superior Court Judge Albert Garofolo said, "My initial reaction might have been 'Yes, there is a CSI effect.' But I think this may be more of a suspicion than anything else. There's a feeling this could be real, but in truth I can't recall a situation where I've heard a jury say they were expecting more."

In 2005 in the *Wall Street Journal*, Simon Cole of the department of criminology, law and society at the University of California, Irvine, and his student Rachel Dioso wrote: "That television might have an effect on courtrooms is not implausible.... But to argue that 'C.S.I.' and similar shows are actually raising the number of acquittals is a staggering claim, and the remarkable thing is that, speaking forensically, there is not a shred of evidence to back it up. There is a robust field of research on jury decision-making but no study finding any C.S.I. effect. There is only anecdotal evidence."

What appears to be the first study of the CSI effect was published in February by Kimberlianne Podlas, an attorney and assistant professor of media law and ethics at the University of North Carolina at Greensboro. Podlas concluded that the chances of, and reasoning for, acquittals were the same for frequent *CSI* viewers as for prospective jurors who did not watch the show—she saw no CSI effect. Several participants, however, said that a lack of forensic testing was an issue, despite the fact that physical evidence would not have resolved the hypothetical charges. Studies of real juries have been advocated, and at least five graduate students (three in the U.S. and two in England) are preparing theses examining the effect.

Overview/*Science vs. Fiction*

- Prosecutors, judges and police officers have noted what they believe to be a so-called CSI effect whereby the popular television forensics programs have led jurors to have unreasonable expectations for the quality and quantity of physical evidence.
- Any CSI effect in courtrooms is still unproved. But the television programs have led to an increase in the collection of physical evidence, contributing to issues of storage and personnel shortages.
- The television shows have also undoubtedly led to an explosion of interest in forensics evidence on college campuses, where enrollment in forensics science studies has greatly increased since the *CSI* series went on the air.

What Is Real?

whether or not forensics shows are measurably influencing the demands and decisions of juries, television is un-

questionably giving the public a distorted view of how forensic science is carried out and what it can and cannot do. The actors playing forensic personnel portrayed on television, for instance, are an amalgam of police officer/detective/forensic scientist—this job description does not exist in the real world. Law enforcement, investigations and forensic science are each sufficiently complex that they demand their own education, training and methods. And specialization within forensic laboratories has been the norm since the late 1980s. Every forensic scientist needs to know the capabilities of the other subdisciplines, but no scientist is an expert in every area of crime scene investigation. In addition, laboratories frequently do not perform all types of analyses, whether because of cost, insufficient re- sources or rare demand. And television shows incorrectly portray forensic scien- tists as having ample time for every case; several TV detectives, technicians and scientists often devote their full atten- tion to one investigation. In reality, indi- vidual scientists will have many cases assigned to them. Most forensics labs find backlogs to be a major problem, and dealing with them often accounts for most requests for bigger budgets. Fictional forensics programs also diverge from the real world in their portrayal of scientific techniques: University of Maryland forensic scientist Thomas Mauriello estimates that about 40 percent of the forensic science shown on *CSI* does not exist. Carol Henderson, director of the National Clearinghouse for Science, Technology and the Law at Stetson University College of Law, told a publication of that institution that jurors are "sometimes disappointed if some of the new technologies that they think exist are not used." Similarly, working investigators cannot be quite as precise as their counterparts on the screen. A TV character may analyze an unknown sample on an instrument with flashing screens and blinking lights and get the result "Maybelline lipstick, Color 42, Batch A-439." The same character may then interrogate a witness and declare, "We know the victim was with you because we identified her lipstick on your collar." In real life, answers are seldom that definite, and the forensic investigator probably would not confront a suspect directly. This mismatch between fiction and reality can have bizarre consequences: A Knoxville, Tenn., police officer reported, "I had a victim of a car robbery, and he saw a red fiber in the back of his car. He said he wanted me to run tests to find out what it was from, what retail store that object was purchased at, and what credit card was used."

Groaning under the Load

Despite not having all the tools of television's CSI teams, forensic scien- tists do have advanced technologies that are getting more sophisticated all the time. Initial DNA-testing methods in the late 1980s required samples the size of a quarter; current methods analyze nanograms. The news routinely reports the solution of a cold case, a suspect ex- cluded or a wrongful conviction over- turned through advanced forensic tech- nology. Databases of DNA, fingerprints and firearms ammunition have become important resources that can link offenders to multiple crimes.

Nevertheless, far from being freed to work telegenic miracles, many labs are struggling under the increasing demands they face. As police investigators gain appreciation for the advantages of science and also feel pressure to collect increasing amounts of evidence, they are submitting more material from more cases for forensic analysis. Police detectives who at one time might have gathered five pieces of evidence from a crime scene say they are collecting 50 to 400 today. In 1989 Virginia labs processed only a few dozen cases. The number of cases being submitted this year has ballooned into the thousands. Of course, not every item at a crime scene can or should be collected for testing. The remote chance of an item being significant has to be weighed against the burden of backlogged cases. But social, professional and political pressures based on unrealistic expectations engendered by television mean that if an officer brings in a bag filled with cigarette butts, fast-food wrappers and other trash, chances are good that most of the items will be scheduled for analysis.

And all that work will have to be done, in many cases, by already overloaded staffs. For example, the state of Massachusetts has 6.3 million people outside of Boston and eight DNA analysts for that region. (Boston has three analysts of its own.) New York City has eight million people and 80 DNA analysts. But Massachusetts and New York City have similar rates of violent crime (469.4 versus 483.3 per 100,000), which is the kind of crime most likely to involve DNA evidence. Massachusetts,

Who will analyze all the evidence?

STORING AND TRACKING MILLIONS of items of evidence pose significant challenges to law-enforcement agencies and forensic laboratories.

CSI MULTITASKER Catherine Willows combines roles of real-life investigators.

Fictional TV investigators

like many other states, thus appears to be woefully understaffed. Thankfully, the state has recognized this imbalance and has authorized the hiring of more forensic DNA analysts.

A consequence of the new trends, then, is exacerbation of the already disturbing backlog problem. A study recently published by the Department of Justice's Bureau of Justice Statistics found that at the end of 2002 (the latest available data), more than half a million cases were backlogged in forensic labs, despite the fact that tests were being processed at or above 90 percent of the expected completion rate. To achieve a 30-day turnaround time for the requests of that year, the study estimated a need for another 1,900 full-time employees. Another Justice Department study showed that the 50 largest forensic laboratories received more than 1.2 million requests for services in 2002: the backlog of cases for these facilities had doubled in the course of one year. And these increases have happened even though crime rates have fallen since 1994.

Another side effect of the increased gathering of physical evidence is the need to store it for various lengths of time, depending on local, state or federal laws. Challenges for storing evidence include having the computers, software and personnel to track the evidence; having the equipment to safely stow biological evidence, such as DNA; and having adequate warehouse space for physical evidence. In many jurisdictions, evidence held past a certain length of time may be destroyed or returned. Storage can be a critical issue in old or cold cases—the Innocence Project at the Benjamin N. Cardozo Law School in New York City has found that the evidence no longer exists in 75 percent of its investigations into potentially wrongful convictions.

Just keeping track of the evidence that does exist can be problematic: a 2003 study by the American Society of Crime Laboratory Directors indicated that more than a quarter of American forensic laboratories did not have the computers they needed to track evidence. Mark Dale, director of the Northeast Regional Forensic Institute at the University at Albany and former director of the New York Police Department Laboratory, estimates that more than 10,000 additional forensic scientists will be needed over the next decade to address these various issues. In addition, appropriate modernization of facilities will cost $1.3 billion, and new instruments will require an investment of greater than $285 million.

The Effect on Campus

on the positive side, through *CSI* and its siblings, the public has developed a fascination with and respect for science as an exciting and important

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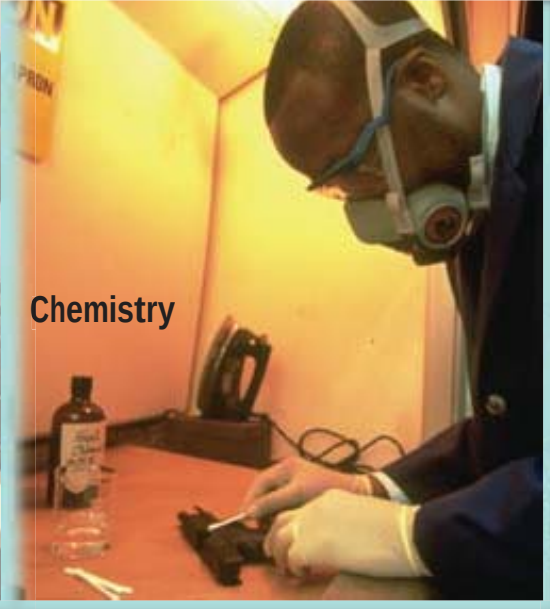

often have expertise in multiple areas of specialization.

profession unseen since the Apollo space program. Enrollment in forensic science educational programs across the U.S. is exploding. For example, the forensic program at Honolulu's Chaminade University went from 15 students to 100 in four years. At my institution, West Virginia University, the forensic and investigative sciences program has grown from four graduates in 2000 to currently being the third largest major on campus, with more than 500 students in the program.

The growth of existing programs and the advent of new ones have been such that the National Institute of Justice, in collaboration with West Virginia University, produced a special report, *Education and Training in Forensic Science: A Guide for Forensic Science Laboratories, Educational Institutions and Students.* The report formed the basis for an accreditation commission under the American Academy of Forensic Sciences. As of this past January, 11 programs had received provisional, conditional or full accreditation.

CSI's popularity may have also affected the demographics of forensic science. In the 1990s women and minorities were underrepresented as leads in television series with a scientific theme; the current slate of CSI dramas, however, has generally improved this representation. Women are now in the majority in forensic science educational programs in the U.S. and in much of the profession. Two thirds of forensic science laboratory management personnel are currently male, a figure sure to decrease as the newer women workers advance.

The best result of public interest in forensics, though, would be increased investment in forensics research. In the past, most research was conducted in police laboratories working on specific, case-related questions. But for technologies to advance markedly, testing is needed in the controlled environment of the academic laboratory. Such labs could investigate questions that clearly require more research. For example, recent legal challenges have called into question the long-held assumption of the absolute uniqueness of fingerprints, tool marks, bite marks, bullet striations and handwriting matches.

As forensic science is increasingly relied on, it must become more reliable: a recent National Institute of Justice report to Congress stated that basic research is needed into the scientific underpinning of impression evidence, such as tire marks or footprints; standards for document authentication; and fire- arms and tool-mark examination. The report also recommended that the federal government sponsor research to validate forensic science disciplines, addressing basic principles, error rates and standards of procedure. Clearly, more funding for such research would be beneficial: one must wonder why the U.S. spent a mere $7 million this fiscal year for basic forensic science research through the National Institute of Justice when $123 million was spent on alternative medicine through the National Institutes of Health.

One of the most fundamental obligations of any democratic government to its citizens is to ensure public safety in a just manner. Forensic science is an integral and critical part of the criminal justice process. In the 21st century properly educated, well- equipped, fully staffed forensic science laboratories are essential to the fulfillment of that obligation. The popular interest in forensic science is at an all-time high, as are the challenges to the veracity of forensic science methods and capacities. Even if no so-called CSI effect exists in the courtroom, the real effect is the realization of the need for the advancement of forensic science laboratories and research. SA

MORE TO EXPLORE

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For updates on forensic science legislation, visit: **www.crimelabproject.com/**