

The CSI Effect: TV's Impact on the Future of Forensic Science

Audry Lee

C*SI: Crime Scene Investigation* has rewritten the rules of prime-time television. The forensic science drama enjoys such immense popularity as to draw 20.4 million viewers weekly in the US alone (1); on one Thursday of October 2005, an estimated 27% of the American televisions that were switched on were tuned to *CSI* (2). The sheer numbers involved are almost mind-blowing – where does its appeal lie and what have its effects been on the way forensic science is perceived?

For those uninitiated into the world of prime-time science dramas, *CSI* revolves around the Las Vegas Police Department's Crime Scene Investigation team, who use forensic techniques to mete out justice on criminals. Surprisingly, this very relocation of the forensic science to the spotlight was what transformed *CSI* into a prime-time hit; for some reason, the logical use of technology to deliver justice appealed greatly to all viewers, regardless of their background in science.

Peter Ocko, the creator of a similar scientifically-oriented show *3lbs*, suggested that the appeal arose from "...turmoil in the world, unease about terrorism, economics,

politics. Science proposes a way out. It's a comfort..." (1). He might be right – post 9/11, there is a growing fear that we are fighting an impossible battle against a multitude of terrorist atrocities. Yet in the shows, viewers are treated to the conclusive victory of science over evil: a crowd favourite – the laws of physics as applied to blood spatter in identifying the villain who dealt the fatal blow.

It is comforting to be lulled into a false sense of security about the infallibility of science, but does this have any negative consequences?

The "CSI effect" is a term that has been coined to refer to the surprisingly significant impacts of the series on society; for one, forensic sciences have never before experienced such widespread and intense popularity. This is reflected in the sudden rise of applications to university forensic science courses – the *National Geographic* estimates at least 90 forensic science programs existed across universities in the United States as of 2004. In 2003, 180 people applied for just 20 spots at the forensic science master's program at Michigan State University (MSU) (3).

However, a significant number of these enthusiastic applicants might be grossly misled by what they see on television: in an e-mail interview with *The Triple Helix*, Dr David Foran, Director of the MSU Forensic Science Program, points out that one of the major problems with *CSI* is how the leads play multiple roles – in reality, the *CSI* officer never does forensic processing, nor is the forensic scientist involved in suspect interrogation or running into crime scenes with guns drawn, which is really the domain of the police detective. Dr Foran also emphasizes that MSU's graduate program in fact mostly takes in students with undergraduate backgrounds in molecular biology, chemistry or physical anthropology, and that contrary to popular belief, "students with undergraduate forensic science degrees have a difficult time getting into top graduate programs, because they really don't have the hard-science background we are looking for" (4).

In fact, this mismatch between reality and fantasy has been so significant that it has made its way into debates at the House of Commons. In the Science and Technology Committee's report "*Forensic Science on Trial*", Professor Evelyn Ebsworth, Chairman of the Council for the Registration of Forensic Practitioners, is recorded as saying, "I think *CSI* probably has an even bigger impact... it makes it all romantic and then people without enormous qualifications go off to university and say, 'I want to do this', so the forensic courses... have a label that makes them seem... always caught with a bright fly. People will gobble it up" (5).

The "CSI effect" has a more disturbing aspect in terms of the expectations raised amongst juries who have been exposed to *CSI*. Apparently they tend to demand that prosecutors present sophisticated 'TV-like' science-based evidence. In 2005, CBS News reported Oregon district attorney Josh Marquis, vice president of the National District Attorneys Association, as saying, "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" (2). While this is difficult to prove quantitatively, as is seen in a study



done by Podlas (6), it does seem entirely plausible. In order to deal with higher expectations, CSI officers now tend to submit every possible piece of evidence that might contain the slightest shred of forensic proof, leading to an endless backlog of cases at the labs – 18, 438 cases were left pending at the Florida Department of Law Enforcement's crime lab as of Sept 2006 (7).

Despite the show's website displaying a 'handbook' explaining the forensic techniques and apparatus used on *CSI* (8), it still does sometimes sacrifice accuracy for dramatic effect – for example, when referring to instantaneous

In fact, there is vast debate about the reliability of 'expert evidence' in criminal trials

fingerprint identification via a database called AFIS (Automated Fingerprint Identification System – maintained by the FBI). AFIS does not automatically match prints to an identity. Instead, a list of matches and the percentage similarities are given, and a fingerprint expert has to manually determine which fits. A similar example is the submission of DNA information to CODIS (Combined DNA Index System), which enables comparison of DNA profiles of convicted offenders electronically (9). On the show, instantaneous results are received – but in reality the backlog of cases might delay receipt of results for up to months (10). More fantastically, we are often shown impossibly clear digital enhancements of hopelessly blurred photos or videos, allowing recognition of license plate numbers or faces of culprits, when in truth current enhancement techniques cannot work well on anything other than a slightly blurred original feed or print.

Whilst some forensic techniques do exist which live up to, and perhaps even supersede, their dramatic counterparts on *CSI*, they still must cross the legal barrier. *Virtopsy*, or *Virtual Autopsy*, for example uses CT and MRI, to scan the body and create high-resolution 3D images of the state of its internal organs. These are used to produce a virtual replica of the body, allowing the forensic pathologist to view it and any wounds or abnormalities at any angle, and without the blood, guts and gore (11, 12). This method is particularly good for detecting internal bleeding, bullet paths and hidden fractures which a coroner might otherwise miss. The scans also highlight emboli which might have entered the body via an open wound. This effervescent evidence could disappear should the pathologist cut open the vein or organ in which it was located. However, before it can make its debut in courts, *Virtopsy* must still be conclusively shown to be at least as, or preferably more effective than traditional manual autopsies, meaning possibly another few hundred cases or so would have to be performed and painstakingly corroborated with findings from a traditional autopsy.

In fact, there is vast debate about the reliability of 'expert evidence' in criminal trials. There are many court incidences where prosecution and defence have presented their own 'expert forensic scientists', each bringing conflicting conclusions based on the same scientific evidence and techniques. In such cases, juries are often subjected to a tough choice, and part of the solution has been to develop systems of accreditation. In the UK, the Council for the

Registration of Forensic Practitioners (CRFP) was set up in 1999, publishing a register of currently competent forensic practitioners, and periodically re-evaluating each (after 4 years) (13). However, this remains quite a new initiative, and it is clear that it faces major challenges in continually updating itself with regards to the rapid developments of the technology used in the field (14).

Accreditation remains a major problem, as is under-funding of forensics labs – the Scientific American estimates that only half of smaller forensics laboratories in the USA are properly accredited, with typically less than 1% of the laboratory budgets being used for quality assurance and training. Also, less than 12% of forensic facilities in the US have any sort of funding for R&D (15). Similarly, the House of Commons report cited earlier mentions inadequacies of budget for research (16), and accreditation of forensic experts and laboratories remains strictly voluntary.

Clearly, *CSI* barely begins to scrape the barrel of scientific information, technological advances, and even political, social and moral debates that lie underneath the banner of forensic science. As legal systems and governments begin to adapt themselves to the widespread popularity of the science, we begin to appreciate the simplicity with which the drama approaches it. Perhaps this, more than anything else, might be precisely what makes *CSI* such compelling prime-time entertainment.

Audry Lee is a 3rd year at Queens' reading Medicine, specialising in Part II Neuroscience.

Acknowledgements:

The author would like to thank Dr David Foran, Director of the MSU Forensic Science Program, for his generosity in providing key insights in his email interview.

References:

1. Weed, Speed. Ph.D. TV. Popular Science, January 2007
2. CBS Corporation, CBS Corporation Reports Third Quarter 2006 Results. <http://www.cbscorporation.com/assets/documents/3Q2006.pdf>.
3. Integrated Automated Fingerprint Identification System. FBI. <http://www.fbi.gov/hq/cjisd/iafis.htm>.
4. Dr. Foran, D, personal communication. 18th Jan 2007.
5. Lovgren, S. National Geographic News. September 23, 2004.
6. House of Commons, Science and Technology Committee, Forensic Science on Trial. 16 March 2005, pp.27. <http://www.publications.parliament.uk/pa/cm200405/cmselect/cmsctech/96/96ii.pdf>.
7. Ribble, M. WFMY News, <http://www.wfmynews2.com/news/article.aspx?storyid=57529>.
8. Curtis, H P. CSI: Orlando. Orlando Sentinel. <http://www.orlandosentinel.com>
9. Sachs, JS. Popular Science, May 2003.
10. CBS. CSI: Crime Scene Investigation. <http://www.cbs.com/primetime/csi/>
11. Wecht, CH. et al. Crime Scene Investigation, Reader's Digest Book, 2004, pp66.
12. Sachs, JS. Popular Science, September 2004.
13. Graham, S. Autopsies, No Scalpel Required, Scientific American, December 2003.
14. Council for Registration of Forensic Practitioners, <http://www.crfp.org.uk/about/whoweare/intro.htm>
15. Roberts, P. and Zuckerman, A. Criminal Evidence. Oxford University Press, 2004, pp 296-305.
16. Response of Houck, MM. to letter by Cantrell, P. As Seen On TV, Scientific American, November 2006.