The Oscar Trial: What we can learn about crime scene awareness

The Oscar Pistorius murder trial has been making headlines for many months and whilst a number of issues are being focused upon, we wish to address one key element that has been the subject of much interest and debate, both in the court room and in the media, namely that of crime scene preservation.

Irrespective of the nature or profile of the persons involved in a particular case, securing a crime scene is of great importance and one that requires a high level of priority and understanding by all first responders as well as the general public.

Why should we secure a crime scene?

Ensuring that a crime scene is properly secured is important for a number of reasons.

a) The potential risk of contamination

By entering a crime scene, you unduly increase the risk of potentially disturbing and contaminating the scene resulting in the loss or destruction of vitally important evidence. When dealing with something as small as DNA for example, a crime scene can easily become contaminated by new DNA inadvertently being left behind by yourself or others.

b) Chain of custody and evidence tampering

The way in which evidence is collected and recorded is often questioned in the court room and it is therefore essential that each step in the processing of an item of evidence is meticulously documented. This ensures that no moment of an item of evidence is ever unaccounted for from collection to analysis. This chain of custody is documented proof of who handled, transported and analysed the item being presented in court. By securing a crime scene, you ensure that any evidence collected can be done so untainted and by the correctly trained crime scene investigators, thus helping to prevent the argument of evidence tampering.

c) Crime scene reconstruction

In order for investigators to later reconstruct the series of events that took place at a particular crime scene, photographs, sketches and measurements are taken before items are moved or collected. This ensures that any theories put forth or conclusions drawn by an expert can be done so as accurately and scientifically as possible. Therefore, by disturbing a scene of a crime, you can adversely affect the outcome of such a reconstruction.

How should you approach a crime scene as a first responder?

The police are usually not the first to arrive at a crime scene and can instead be one of a number of different non-SAPS personnel, e.g. paramedics, security officers, neighbourhood watch patrollers or even members of the general public.

A first responder is essentially anyone who arrives first at a crime scene. And while this person may not be a trained CSI, their role is of no less vital importance. For without their immediate action, a crime scene may quickly become contaminated resulting in evidence being lost or destroyed before an investigation is even underway.

The following DNA CSI acronym formulated by the DNA Project highlights the key points and steps you should follow as a first responder when approaching a crime scene:

Don't touch
✓ Nothing should be touched unless absolutely necessary.

Note, record and observe
✓ Make a note of the type of crime committed and observe what may have been disturbed or left at the crime scene.
✓ Record in writing the identity and actions of people already at the crime scene and record anything unusual or of value to the investigation.

Assist police officers
✓ Provide assistance by requesting witnesses to wait near the crime scene for an Investigating Officer.

Careful! Contamination
✓ DNA evidence can easily become contaminated and care must be taken when offering comfort and aid so as not to disturb the crime scene.

Secure the crime scene
✓ Prevent unnecessary access to the crime scene.

Insist no one interferes
✓ The crime scene may contain valuable evidence and the less people who enter the crime scene the greater the chance of finding DNA evidence.

Forensic evidence is one of the most valuable and objective forms of evidence we have and is the reason why it's so crucial that we always protect a crime scene in order to preserve the valuable evidence contained therein.

Therefore, always remember DNA CSI!
Carolyn and I were spoilt for choice in having the opportunity to attend as well as present at what can only be described as a world class event: the 2nd Annual Forensic Science Services (FSS) Conference which was held earlier this year in Pretoria from the 10th to the 13th February 2014.

On any given day there was a choice of three different presentations running simultaneously around the fascinating world of forensic science. The only difficulty we had was choosing between which lectures they would attend at any given hour!

A combination of both local and international speakers made up the presenters platforms and topics ranged from strange and gruesome murders, to the latest in DNA as well as Fingerprint technology to legal and ethical perspectives on the various disciplines of forensic science. It was hard to believe that the FSS fell under what is often perceived to be a police force in crisis: the FSS, whilst part of SAPS, stands head and shoulders above any other SAPS department in terms of their expertise, foresight and willingness to embrace and utilise all of the latest forensic science technologies available to them.

What also struck Carolyn and I was the passion of the team that make up the FSS: whether they emanated from the fingerprint or DNA section, ballistics or questioned documents, they are all competent and passionate experts who are committed in every way to seeking justice and reducing crime.

It was an honour and privilege to be part of this group of people, which culminated in a fabulous gala dinner where everyone dressed up to the nines, and transformed themselves into glittering and gorgeous guests befitting of a ball! The SAPS band boogied the night away and we were entertained throughout the night by thoughtful addressees by the heads of the FSS.

Moreover, the work of The DNA Project was publicly and repeatedly acknowledged by the FSS, and it made us proud to be part of this dynamic group.

There is no doubt that the new DNA Act is going to put enormous pressure on the FSS and that there will be many challenges ahead, but with a Forensic infrastructure such as the one that we have in SA, as well as a team of committed people willing to do their bit to make it work, we will not only be moving in the right direction, we will in the future be one of the front runners of forensic science in the world.

These are exciting times and we all need to stop for a minute and celebrate these small victories when we see them.

Thank you and well done to the FSS for a fantastic week — we look forward to next year where hopefully you will be able to fit in even more people to share this wonderful week of learning and opportunity.

The STRANGE CASE of the PHANTOM KILLER

Female serial killers are strikingly rare, but in 2007, a woman dubbed “The Phantom of Heilbronn” assumed national prominence in Germany after the murder of a policewoman.

The Phantom’s crimes were too numerous to mention; scores of brutal murders and thefts, a string of brutality extending as far back as 1993.

The Phantom struck in France and Austria, utilized accomplices of every nationality. There was no clear pattern, no video footage; the Phantom walked through walls. And then police discovered male fingerprints that read positive for DNA.

It was only then that they realized that there was in fact no Phantom of Heilbronn.

The cotton swabs used across Europe to collect DNA were found to be contaminated, likely by someone packing them in the factory. The sterilization process used to treat the swabs killed bacteria, fungi, and viruses, but it did not remove DNA.

The implications of this blunder are far reaching; besides the obvious waste of thousands of man hours, there were dozens of savage crimes whose culprits were virtually ignored while investigators chased a ghost.
The DNA Project hosted its first ever live Q & A event on the 19th of March with fellow DNA awareness trainer and Human Identification Specialist David Swanepoel regarding the topic of forensic DNA analysis. The following is a selection of the top questions asked during the event:

**Q: What are the qualifications required to get involved in:**
1. **DNA testing?**
2. **Crime Scene Investigation?**

1. For DNA testing, it will be necessary to have some molecular biology experience - this could be a degree in molecular biology, or forensic science specifically.

2. For crime scene investigations, it is recommended that you have some qualification in the area of crime scene analysis that you will be working in. I.e. if you are going to collect DNA at the scene, you should have some molecular biology knowledge, if you are working with chemicals/ clandestine labs - some knowledge in chemistry would be advantageous. The SAPS has on the job training for crime scene personnel.

**Q: How up in the world of forensic DNA is South Africa?**

South Africa is among the top in the world when it comes to DNA analysis. A new act the "DNA Act" has recently been signed into law and it allows for the technology to be used more effectively. We have two great state biology labs, which unfortunately are tasked with processing a massive amount of samples on a daily basis.

**Q: Is it possible to determine my British ancestry? I.e. Irish or Scottish or both!**

Yes, it is certainly possible to broadly determine one’s ancestry using mitochondrial DNA analysis. This involves sequencing your mitochondrial DNA and matching that sequence against a database of many sequences that provides an indication of your ‘haplotype group’. This roughly links you back to previous generations through the maternal line.

There are few organisations offering such a service. I would start at the Origins Centre at the University of the Witwatersrand if you are interested in this analysis.

**Q: I’m a 2nd year student in Molecular and Cell Biology and Chemistry at Wits. I want to be a forensic scientist. What would be the best way to go?**

You certainly are in a good position in that you will possess both the molecular biology and chemistry skills required. I would suggest that you take a look at the honours programmes offered by the University of the Witwatersrand, or if you wish to explore further, by the University of the Free State, University of Cape Town or University of the Western Cape.

I would advise continuing with a post-graduate qualification - it is up to you whether you want to follow the analytical chemistry route or the DNA/molecular biology route. Job opportunities in the criminal field are only offered by the SAPS but other private laboratories such as Lancet Laboratories are involved with human identification work as well.

**Q: I would like to pursue a career in this and am currently studying BSc in Biochemistry and Physiology, and would like to know more or less the requirements for a job in DNA analysis and as a forensic scientist? Also how can I gain work experience in a lab?**

Your qualifications are also suitable for working in the forensic DNA field. If you have done any genetics courses as well, that will help too. A forensic science career for criminal work in South Africa is currently only offered by the SAPS through their Criminal Record and Forensic Science Service division. There is a large amount of on-the-job training that takes place and one is required to pass competency and proficiency tests in order to begin working in any of the processes.

Unfortunately, you will not be able to spend time at the lab job shadowing or as an intern due to sensitive nature of the casework and possible contamination risks, however the analysts at the lab are always willing to discuss their careers and what the job entails. Lab experience can be gained through a postgraduate qualification (in forensic genetics) and at certain private laboratories that are involved with human identification work, such as Lancet Laboratories or PathCare.

**EXPERT PROFILE**

David received a B.Sc. Molecular and Cellular Biology in the fields of Genetics and Biochemistry from WITS followed by a B.Sc. (Hons.) in Biochemistry and Cell Biology.

David volunteers as one of the DNA Project’s trainers and currently works as a Human Identification Specialist for Lancet Laboratories and is involved with the processing and analysis of samples for parentage determination, kinship analysis and identifications for private, forensic or missing persons cases.
South Africa’s adoption of DNA legislation

South Africa has recently been at the epicentre of a spate of horrific violence, with reports of rape and murder making headlines almost daily. Disturbingly regarded as the ‘rape capital of the world’, South Africa has never before required a more urgent need for the effective use of DNA profiling in conjunction with a DNA database in aiding investigations as now. Although South Africa has conducted DNA profiling since 1998, there was no supporting legislative framework for its use until now.

On the 27th of January 2014, a new DNA Act -- Act No. 37 of 2013: Criminal Law (Forensic Procedures) Amendment Act, 2013 -- was officially passed into law.

The DNA Project actively lobbied to pass such legislation, as well as providing DNA awareness workshops to a variety of first-on-the-crime-scene individuals and organisations.

As with all new DNA legislation, there arises an essential need to intensify training and awareness around the DNA process, from the crime scene to the court room, in order for the value of DNA evidence be realised. In addition to this, formal training and evaluation for professionals in all aspects of the DNA process will also be a requirement once legislation is enacted.

Our infographic reflects on some of the key events that have brought us to the point we are at today.

Enacting legislation is only a step on a journey to effectively utilise DNA profiling resources in a more intelligent manner and it is necessary that significant investment be continually made towards the improvement and advancement of this exceptional technology and tool.

UPCOMING EVENTS

28 – 30 May 2014

7th Annual Leadership for Women in Law Enforcement Conference

Guest Speaker: Vanessa Lynch (DNA Project founder and executive director)

Venue: Gold Reef City, Johannesburg
NEWS HIGHLIGHTS

SOUTH AFRICA

- DNA Bill could take 5 years to implement - http://www.citypress.co.za/news/dna-bill-take-5-years-implement/

INTERNATIONAL


GALLERY

Cape Argus Cycling Tour 2014