

## Networked Knowledge Media Reports

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This page set up by [Dr Robert N Moles](#)

[Underlining where it occurs is for NetK editorial emphasis]

GQ is a [leading men's magazine](#) with a print reach of 107K, digital reach of 76K, mobile reach of 23K.

On 1 December 2019 Elle Hardy of GQ Magazine reported “Evidence on Trial”

**Talk to the average CSI fan and putting criminals away is as simple as spotting the tiniest speck of blood or strand of hair left at a crime scene. But a slew of recent cases suggests that much of the forensic evidence we've come to accept as gospel in the courtroom may actually be far less reliable than we think**

As far as criminal trials go, it looked like an open-and-shut case. In November 2010, a 15-year-old girl said that she was the victim of an attempted kidnapping on a street in Prospect, South Australia. The teenager had fought off her assailant, who was telling her to get in the car, before escaping his clutches, and entering his licence plate into the notes in her phone. She later went to the police and identified a man shortly after in a photographic line-up.

At the 2012 trial of the accused man, 39-year-old [Adrian Shane Drummond](#), a scientist from Forensic Science South Australia testified that none of Drummond's DNA was found on the girl's clothing, or vice versa. But the scientist also testified “studies have shown in our laboratory that 10 per cent of these swabs or samples actually only provide us with any useful information”. The absence of any contact DNA evidence, then, was hardly unusual.

Drummond was sentenced to five years and three month's jail, District Court Judge Ralph Soulio called the kidnap bid “sinister and frightening,” while Drummond's lawyer submitted to the court that the offence was un-planned, spontaneous, and ill-conceived.

“The thing is, I didn't do it,” Drummond tells *GQ*. “From the time the police came to my door, I kept saying, ‘someone needs to get their facts right’. I didn't kick up or anything, I just kept saying, ‘This isn't right’.”

Drummond, who the judge agreed had a clean history, declared his innocence. Not only was the prosecution's case based on circumstantial evidence, but the teenager had actually identified a different man to Drummond in the photo lineup. She did not make mention of his distinctive tattoos nor the yellow fog lights on the front of his car. Under cross-examination,

she agreed that the clothing she had described as the attacker's did not match the clothing Drummond was wearing that day.

But during his opening address, the prosecutor declared that the science was not in Drummond's favour. "Ladies and gentlemen, her top was tested for his DNA, his top was tested for her DNA. There is no contact DNA that matches," he told the court. "You will hear from a forensic scientist that this is not like the TV shows, the absence of DNA could be caused by a number of factors. You don't always get contact DNA just from touching something. That is you don't necessarily leave enough DNA to be tested for a positive result by touching something."

Drummond's Legal Aid lawyer, who he met for the first time on the day the trial started, queried this key point of evidence in his closing remarks.

"You shouldn't be sucked into a situation where you think that the accused might still have touched her clothes but it wasn't recovered. My learned friend may have slipped when he said that there was 'no discernible DNA found on [the girl's] top'. That is wrong. There was no DNA found at all. You heard the evidence. For goodness sake, a boy hugged her in that top and left DNA on her. This bloke is supposed to have dragged her, scuffled with her from behind and then from the front, and there is not a skerrick."

During Drummond's second appeal, it would transpire that the prosecution's star forensic scientist "had a misunderstanding about aspects of those studies and their significance" that she had used in support of her evidence.

Furthermore, she failed to note that a subsequent study showed that the 10 per cent figure was inaccurate. There will, in fact, be DNA transfer in up to 90 per cent of cases. While there is no suggestion that she deliberately misled the court, one appeal court judge noted that "if the jury had been told ... that the relevant figure was 90 per cent, that would have produced an entirely different impression," adding that there is a "vast difference between 10 per cent and 90 per cent."

"When they read the guilty verdict, my lawyer came up to me and said, 'Bad things happen to good people,'" says Drummond. His second appeal was successful while he was on parole. A retrial was ordered, though the charges were later dropped by prosecutors. He eventually walked free in September 2015.

But the problem is that a lot of bad things have been happening to innocent people. Australia is unique among Anglosphere countries in that it doesn't have any formal threshold for the reliability for the admission of forensic evidence in court.

Yet studies are beginning to mount that show that much of the forensic scientific evidence that we thought was settled is actually far from it. Many of these 'sciences' relied on to secure convictions – blood spatter, bite marks, tyre impressions – have been adopted by police almost without question.

“There are two main problems in Australia,” says Professor Gary Edmund, director of the program in Expertise, Evidence and Law at UNSW Sydney.

“One is that the courts haven't been very good at regulating both the admissibility and the use, and explaining the limitations, of forensic science evidence. Australia, unlike many other common-law jurisdictions, doesn't have any requirement that forensic science evidence be reliable before it is admitted. So that means the question about whether the technique works, how good the expert is, all those sorts of things are for the trial and the jury to resolve.”

“The second problem is that many of the forensic sciences, and particularly the ones out of police laboratories, have not come from mainstream science.”

This is sometimes referred to as the 'CSI effect', where it's said that the popularisation of forensically focussed crime shows has skewed the public's ability to understand that solving crime isn't as straightforward as it appears. After *CSI* hit our screens in 2000, there was a slew of crime-fighting shows, including *Dexter*, about a blood-splatter analyst moonlighting as a serial killer, and *Mindhunter*, which has taken us into the birth of psychological profiling used to solve the worst mass murders in the '70s and '80s.

Recently, the tide has turned in the other direction, with a number of true-crime shows such as *Making a Murderer* and Australian podcasts [Curtain](#) and *Teacher's Pet*, shedding new light on long-buried cases and even helping to reopen trials.

The fallacy about the faultless ability of science to fight crime isn't confined to us lay people at home in front of the box. The idea that forensics can pinpoint someone at the scene of a crime by a footprint, or a piece of hair, a style of violence, or even a fingerprint is largely accepted as certain by some in the ranks of police, prosecutors and judges. It could be said that what *Mindhunter* gets most right is the theorising and fumbling in the dark. These

comparison forensic techniques, in which scientists visually contrast evidence, were invented largely by guesswork.

“The comparison forensic sciences, people said that they were good, some people even said they are infallible,” adds Edmund. “But actually, they’ve never been formally evaluated.”

Take fingerprint analysis. On our screens it looks like an unimpeachable forensic tool, with high-tech lines zooming around the print that we are told is unique to each of us. Analysts will look at the features on the latent print, such as where ridges start and end, and how lines flow, and note those they believe are significant. They then compare those features to ones identified on the suspect’s print and determine whether they believe there is sufficient similarity between the two.

But [a 2016 report in the US](#) from the President’s Council of Advisers on Science and Technology (PCAST) says that when it comes to the practice that has existed since the 1800s, “validity was assumed rather than proven”.

Edmund recently took part in a review of all reported cases in Australia where fingerprint analysis was used. “The first one was in 1911,” he says. “But the first time I can ascertain that a lawyer asked a fingerprint examiner, ‘Can you do this and how accurate are you?’ was asked in 2015.”

Study after study keeps showing that these so-called sciences are questionable at best.

**“When they read the guilty verdict my lawyer came up to me and said ‘bad things happen to good people’”**

Bite-mark analysis, the attempt to match an impression from a suspect’s teeth with crime-scene evidence, is entirely unsupported and “should be totally thrown out of forensic science,” one dentist and researcher recently wrote for *The Journal of Forensic and Legal Medicine*. Similarly, there’s no consensus on whether ballistics, the markings left on bullets as they are fired by a gun, are entirely unique, as often claimed.

The PCAST report recommended clear scientific standards on the validity and reliability of all forensic methods as well as a complete re-evaluation of those methods. Another wide-scale report from the [US National Academy of Sciences in 2009](#) put it more bluntly. “A body of research is required to establish the limits and measures of performance and to address the impact of sources of variability and potential bias,” it read. “Such research is sorely needed, but it seems to be lacking in most of the forensic disciplines that rely on subjective assessment of matching characteristics.”

Even far more technical fields of evidence are being proven shaky. In September, Denmark, released 32 prisoners, after a review of 10,700 criminal cases found serious questions about the reliability of geolocation data obtained from mobile phone operators.

Investigators also found that data was sometimes lost in the conversion process, meaning the picture of a phone's location could be materially incomplete. Phone records also linked phones to the wrong masts, connected one device to several towers at once, sometimes hundreds of kilometres apart, recorded the origins of text messages incorrectly, and got the location of specific towers wrong.

In the United States alone, authorities look to geolocation evidence in tens of thousands of cases each year. And recently, what many would think of as similarly firm science – drug lab testing – was also found to lack rigour. In [Massachusetts, some 16,500 cases were overturned](#) after it was discovered that scientist Sonja Farak stole, used and tampered with drugs she was supposed to be analysing and even manufactured them herself in the police drug-testing lab.

That came two years after more than 20,000 cases were dismissed in the same state, when [drug lab chemist Annie Dookhan](#) admitted falsifying test results, contaminating samples and simply not performing tests she had claimed to have done over a period of eight years. By the time her misconduct came to light, many of those convicted using her evidence had already served their sentences.

The US Innocence Project found that misapplication of forensic science contributed to 45 per cent of wrongful convictions in the United States proven through DNA evidence. The National Registry of Exonerations also found that false or misleading forensic evidence was a contributing factor in 24 per cent of all wrongful convictions in the country.

Much of matching analysis, including fingerprints, goes back centuries to hotshot detectives trying to fight crime, as post-Enlightenment Europe looked for 'rational' evidence to convict offenders, once torture was phased out of the legal system. Edmund notes that only DNA matching has come from mainstream science, and it is shining a very uncomfortable light back on the other forensics.

"DNA evidence is expressed in probabilistic terms because it's scientific, and the results are expressed in terms of likelihood. But the other forensic sciences, the comparison sciences, are making categorical claims, like, 'This is a bullet from *that* gun'. They are just making bare assertions without ever testing it themselves."

With this absence of empirical evidence, why are forensic sciences still being funded by governments and pursued by police departments? It might be our misplaced faith in the neutrality of the people involved. Some, such as Forensic Sciences SA, which is run by the Attorney General's office, might give some the impression that they are run by the same people who are looking to solve crimes by securing convictions.

To illustrate the depth of the problem facing those wishing to challenge the reliability of forensic evidence you only need to look at the way appeals have traditionally been heard in the legal system. It is only in recent years that changes in law have now made it permissible for fresh and compelling evidence - as was used in Adrian Drummond's case - to be presented to a judge on appeal.

The scientist in question is still employed by Forensic Science SA, and it is unknown whether there were any repercussions as a result of her testimony. The state's Attorney-General department told GQ that it is unable to comment on the misleading testimony, or advise of its internal processes to ensure the correct evidence is given in court.

For the many examples of problems in forensic sciences, they are magnified in Australia because we have failed to keep up with the rest of the western world when it comes to regulating what can be presented as evidence.

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Dr Robert Moles has been telling this to anyone who will listen for almost 20 years. The Flinders University law professor fell into investigating wrongful convictions after trying to find a way to engage his students using real-life cases.

In 2000, his students came to him about the case of an Adelaide man, [Henry Keogh](#), who they believed was wrongly convicted for the 1995 murder of his fiancée, Anna-Jane Cheney, on the basis of highly questionable forensic evidence.

"I had no idea what I was getting involved with, but it was an eye opener for me. We quickly realised that in fact, it wasn't just the Henry Keogh case," he says. Moles has previously questioned the reliability of evidence presented by [Dr Colin Manock](#), who was SA's chief forensic pathologist for almost 30 years and oversaw thousands of cases.

Though Moles is not alone. In 2018, [SA Attorney-General Vickie Chapman told the ABC](#) that Dr Manock's evidence as an expert "was completely unreliable" and that he has been "discredited".

During the 2017 [High Court appeal](#) of [Frits Van Beelen](#), who was convicted of murdering a teenager in the 1970s, the University of Adelaide Medical Professor Michael Horowitz characterised Dr Manock's evidence about the victim's time of death as "unequivocally highly erroneous". Though the court ultimately found that there had not been a substantial miscarriage of justice and dismissed the appeal.

Moles and his students began to examine [a number of other cases](#) in which Dr Manock had testified and discovered at least a dozen cases in which he's given evidence that has subsequently been called into question.

Perhaps the most notorious cases where Dr Manock gave testimony that was found to be incorrect was in the ['baby deaths' cases in the 1990s](#). Three infants had died in separate incidents, ruled by Dr Manock as being caused by bronchopneumonia. But all three children had extensive broken bones that would suggest something far more sinister.

A subsequent coronial inquest into the deaths found that "the post-mortem examination basically achieved the opposite of its proper purpose in that it closed off lines of investigation rather than opening them up". The report was released two days after Henry Keogh was convicted of murder.

Dr Manock, who is now retired, could not be reached for comment and has not responded publicly to concerns raised about his forensic work. Though in 2004, when the Medical Board of South Australia held an inquiry into his work on the Keogh case, Manock dismissed questions around his determination of the victim's cause of death, stating that his findings were not supported by current scientific literature because the "rest of the world hadn't caught up" to him.

The problem of the reliability of forensic science was so great in South Australia that Moles and his colleagues [lobbied for a law that was introduced in 2013](#) in which fresh and compelling evidence could bring a case back to court that may have caused a substantial miscarriage of justice. Under this law, Henry Keogh and Adrian Drummond were the first to have their convictions quashed in 2015.

Moles thinks that it highlights a much wider problem. He argues that it's not only the science that needs to be scrutinised, but the culture within the crime-fighting community.

"Look at cases that have been overturned, and you'll see that a lot of the errors were perfectly obvious from the outset. It wasn't that some new science came in and they realised that they had made a mistake. If you've got a ghastly crime, and find somebody who you think looks a bit suspicious, it's very easy for the police to adopt tunnel vision to go after that person."

He believes that the reason that many cases around the world get reviewed and defendants exonerated after 20 or more years is that there is [cognitive dissonance](#) within the legal fraternity.

"The reason it takes so long, is because if you overturn them any earlier than that you have this element of embarrassment coming in to your friends and buddies. They may have been the lawyers and the judges in the case."

Keogh has [since received a \\$2.57m ex gratia payment](#) after his conviction for murdering his fiancée was quashed. Drummond applied for a \$500,000 payment, but it was rejected by the Attorney-General's office.

In spite of everything, Drummond, who is now 46, has little desire to be the public face of injustice. He just wants some compensation for the two years and three months he spent in prison and the stress it caused him and his family, so they can get on with what is left of their lives.

"I've spoken to Henry Keogh a couple of times," he says. "I thought speaking to him might help me cope, but it dragged everything back up and made me feel worse. I stay away now. I just can't deal with it."

But a recent turn of events shows that there is a burgeoning movement for change. In September, [a senior Victorian judge spoke out in the Fairfax press](#), calling for an inquiry into systemic issues with forensic evidence as the number of wrongful convictions in the western world are "a matter of profound concern".

Justice Chris Maxwell, president of the Victorian Court of Appeal, said that he was "shocked" to discover the [reports out of the US that cast serious doubt](#) on the veracity of the forensic science being presented largely unchallenged in our courts. The reports led to major changes to the US and British legal systems - but not so in Australia.

"With the exception of DNA, no other area of forensic science has been shown to be able to reliably connect a particular sample with a particular crime scene or perpetrator," he said. "I



was asking myself, 'Why are we not having appeals based on questions of admissibility of forensic evidence?'"

Justice Maxwell's criticisms were rejected by the National Institute of Forensic Science, with director Dr Linzi Wilson-Wilde stating that the US report "is three years old, and considerable work has been, and continues to be undertaken to address findings contained in the report".

But Justice Maxwell is unperturbed, and has called on governments to urgently update their laws so that judges must consider the reliability of forensic evidence before it was shown to juries.

Though it seems that at least some in the Australian justice fraternity are heeding Maxwell's concerns. In September, [Victoria's Attorney-General Jill Hennessy called for a national review](#) of forensic evidence, following doubts about the accuracy of forensic tests performed on bullets, hair, bite marks and footprints.

"We continue to be concerned about forensic evidence in court," Daniel Gurvich QC, chair of the state's Criminal Bar Association, which supports Hennessy's call for a review, told *The Age*. "The risk of miscarriages of justice is always present when the science is doubtful."

Dr Jason Chin, who researches the intersection of psychology and law at The University of Sydney, says it is less about a so-called 'CSI effect' and more to do with the way the court system is set up.

"It's not really about what's on television, it's that people naturally tend to believe 'scientific' evidence when it is presented to them by someone who appears to look like they know what they're talking about," he says. "The problem is that it's all presented in a very adversarial way. It's the prosecution against the defence, and the prosecution is typically the one who has the expert witness. The accused person generally can't afford one."

"There's a lot of opportunities for bias," he adds. "I would think that they should explain that some of this is very subjective. The evidence is given the veneer of objectivity and say that there are scientists that never make mistakes, even though that's not true. The people who give the evidence should be more humble."

Dr Moles says we need to overhaul the justice system, starting with getting judges to enforce proper reliability standards to ensure that scientific experts are presenting evidence which has proper scientific support.

**"We cannot continue to allow junk science to be used as part of a point-scoring exercise, which misleads the uninformed members of the public who make up the jury in a criminal trial."**

"We cannot continue to allow junk science to be used as part of a point-scoring exercise, which misleads the uninformed members of the public who make up the jury in a criminal trial," he says. "Where questions arise about the reliability of scientific evidence, those matters should be resolved before trial, by a non-adversarial hearing, which allows the relevant experts to openly discuss the issues involved."

Drummond might be a free man, but he says he continues to be shunned by his extended family, friends, and colleagues - everyone in his life but his wife and four children. He feels forever tainted by his brush with the legal system.

"I just keep to myself now," he says. "I have trust issues with people. I get really bad nightmares, and wake up in a pool of sweat every night. There was no counselling or support when I got out of prison. They just told me to piss off."

It is now a matter of how much justice Drummond can afford. After being represented pro-bono to get his wrongful conviction overturned, he says that he needs to come up with \$100,000 to sue the government for compensation.

"The justice system and the whole idea of evidence is a joke," he says. "Unless you've got money they can do whatever they want to you."