THE UNHAPPY RELATIONSHIP BETWEEN FORENSIC SCIENCE AND THE LAW:
Serious Marriage Guidance is Long Overdue

Dr David Klatzow, independent forensic consultant

takomabibelot

Scientific evidence has played an ever increasing role in solving crimes. In the forefront of fictional detectives, Conan Doyle's Sherlock Holmes was part sleuth and part scientist. A notable example is when Dr Watson finds Holmes in a state of delight at having found a chemical reagent which could infallibly reveal the presence of blood.

The field transformed itself from an academic discipline into the full blown subject of forensic science over a relatively short period. It did, however, experience a shaky start in the prosecution *R v Smithurst* in 1859 in England.[1]

Subsequently, the subject and its practitioner (in the person of Bernard Spilsbury) rose to great prominence in the trial of Dr Crippen in England in 1910. I have written elsewhere about this case.[2] As the needs of the law developed, so forensic science expanded to fill those needs until much of current forensic science developed under the shadow of the courts and police departments and not as fully academic subjects within mainstream science.

After two disastrous fingerprint misidentifications (Shirley McKie in 1997 and the Brandon Mayfield matter in 2004, where these two individuals were misidentified by the most senior fingerprint examiners in the Scottish Records Office (SCRO) and in the FBI), the United States Government recognised that "significant improvements were needed in forensic science."[3]

In November 2005, the Science, State, Justice, Commerce and related Agencies Appropriations Act of 2006 became law in the United States.[4]

The outcome of this was the report "Strengthening Forensic Science in the United States."[5] It became rapidly apparent that much of what passed as forensic science had little or no scientific basis to support its often grossly exaggerated claims.

Writing in 2017, Risinger and Saks comment "despite the fact that the NAS Report found that much of the comparative forensic sciences rested on an extremely weak foundation and almost no valid and rigorous research, there is a growing body of unreliable "research" funded by law enforcement agencies who have an interest in promoting the validity of these methods. No better incubator for biased results could be imagined".[6]

They believe that "[a]fter a century of oversold and underresearched claims there is a sudden interest in doing research."[7] They warn that this research should be approached with caution.[8]

With the advent of DNA forensics, the technique pioneered by Sir Alan Jeffries in Leicester, a more focused beam has been cast to illuminate the field of forensic science and the technique has been used with startling success in the Innocence Project in the United States[9]. A cautionary note must be sounded at this juncture. "While the new forensic sciences undoubtedly offer an unprecedented degree of certainty and reliability, these characteristics alone do not render them less susceptible to misuse. The most lauded attributes of these new forms of forensic evidence may exacerbate the conditions that first caused traditional forensic science to fall into disrepute."[10]

"The established method of distinguishing good from bad sciences is to consider its resilience when challenged. The scien-

tific method which is the cornerstone of reliability asks whether a method is testable and falsifiable. Open debate spurs the development of sound new principles and thwarts the propagation of the bad. Competition inspires scientists to challenge orthodoxy and engage in experimentation. Diversity further subjects theories to rigorous peer review and testing which in turn ensures that they survive close scrutiny under various conditions. But while this may be true of science generally it has unfortunately never been described in the fields of forensic science."[11]

Most of the forensic laboratories are not certified and do not subject themselves to blind testings. In fact, it has been commented that it takes higher standards to diagnose a strep throat than are met or not met by forensic laboratories, which can put a man on death row.[12]

It should be remembered that there is no market for forensic tests, outside the criminal justice and legal system. Most, if not all, forensic services exist and are financed by government fiat. There is vanishingly little true challenge to the forensic sciences for a number of reasons, as some American commentators point out. Funds adequately to challenge the prosecution evidence are seldom available and almost never for the indigent. Private forensic experts are few and far between resulting in most of the experience and "expertise" being represented on the prosecution side and not the defence side. The defence rarely if ever sees the exhibits in a pristine condition. This is always the prerogative of the state / police experts. The disadvantage of this state of affairs to the defence would be difficult to exaggerate.[13]

To the extent that blind testing was ever carried out by government forensic laboratories, the research efforts were compromised by clandestine revelations of the tests to the involved laboratories by the co-operating law personnel.[14] This gives an inside view of the mindset of the parties involved.

The tendency to oversell the forensic evidence is prevalent. In the early days of DNA forensic identification, a forensic "expert" testified "that in the experience of the entire forensic laboratory community there was not a single instance where different unrelated individuals share three loci in common."[15]

The level of overstatement can be gauged from the remarks of Sir Alec Jeffreys, the originator of the DNA identification technique and Nobel Prize winner, "a ten locus probe is no longer considered foolproof and a fifteen locus probe is recommended."[16]

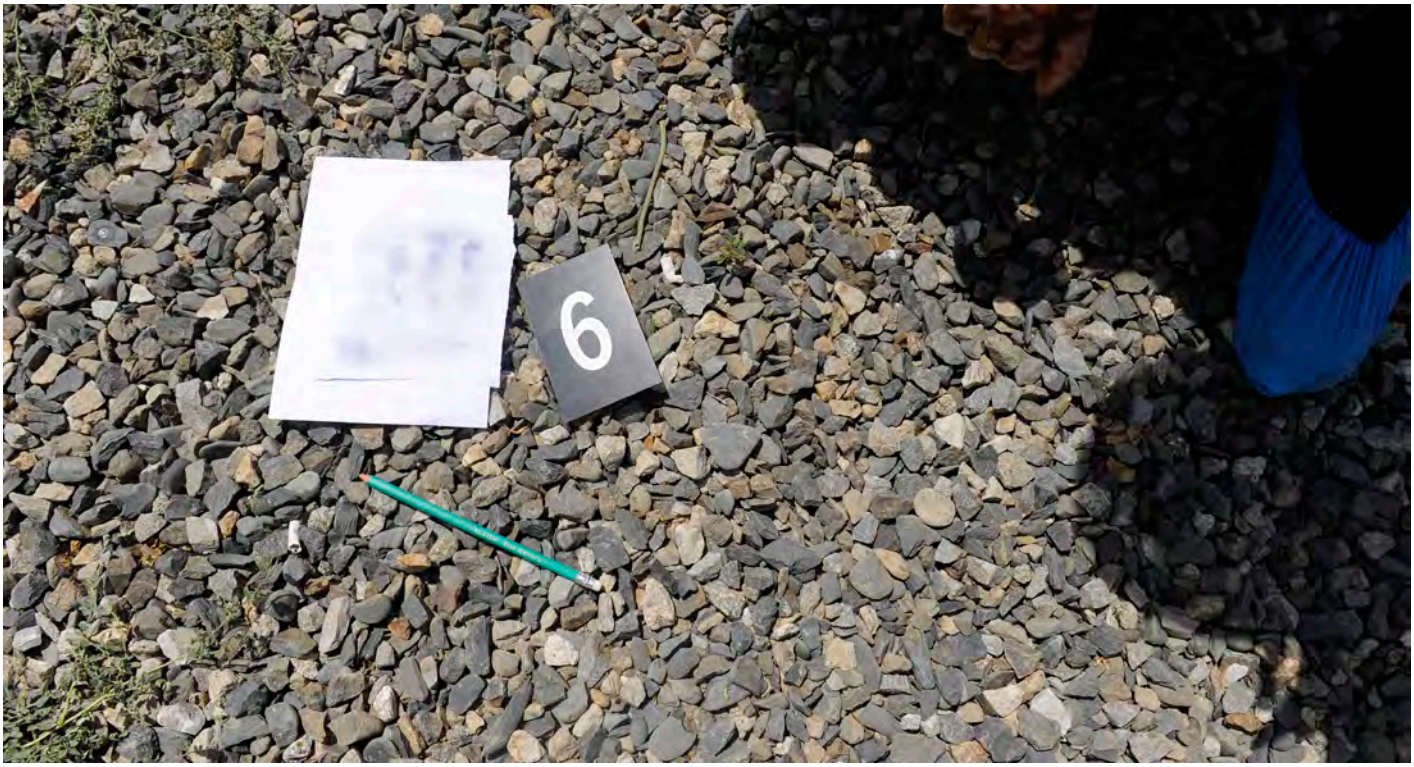
The rot extends to the top forensic laboratory in America (the FBI) who have consistently given false / flawed testimony over more than two decades.[17]

Generally, people will tend to behave as badly as they think they can get away with. Anyone who thinks that this viewpoint is unduly cynical would be well advised to read the Seminal Tract, "The Lucifer Effect, How Good People turn Evil."[18] This is a tour de force emanating from the Stanford Prison experiment. This was an experiment where Philip Zimbardo, a professor of psychology at Stanford University, placed a random group of healthy students together in a mock prison, naming some guards and some prisoners. In less than a week, the study had to be ended when the guards became increasingly power mad and sadistic and the prisoners pathological.

We only have to see the real life example of this in the horrifying abuse of prisoners by British and American soldiers in the Abu Ghraib prison in Iraq. That this phenomenon is not uncommon can be easily seen from such publications as Cruel Britannia by Ian Cobain[19] and Secrets and Lies by Gordon Thomas.[20]

The common feature of all these human abuses is that the abusers have no accountability. When humans are given carte blanche one may expect appalling behaviour. A segment of society that enjoys a large measure of a lack of accountability is the state prosecution officials.

Whilst it may be noted that a significant part of the literature quoted comes from the American legal system, it is so that



EUPOL Afghanistan

given similar circumstances of no accountability acting as the poisoned soil, one might expect the fruits of this endeavour to be equally poisonous elsewhere, and so it turns out to be, as illustrated further in this article. It will be seen that this poison diffuses across continents and oceans and is to be found in England and South Africa as well as in the Antipodes. In England, the now notorious case of *R v Preece* involved a home office forensic officer called Alan Clift, who was persuaded by the prosecutor in the case to remove a finding from his report which would exonerate the accused. This was subsequently discovered and the accused was acquitted after eleven years in prison. Alan Clift was properly excoriated and ended his career in disgrace. But what of the prosecutor who urged him to commit this forensic dishonesty, bearing in mind the oath to tell the whole truth?

In South Africa, in the case *S v Van der Vyver*[21], the prosecution knew that their star witness, Bruce Bartholomew, had been less than candid about his visit to FBI expert, William Bodziac. Bartholomew had been to the USA to get support for his identification of the accused's alleged footprint in blood in the flat of the murder victim. Bodziac was unable to confirm Bartholomew's findings (and ended up testifying for the defence). Both prosecutors knew of this disagreement, yet chose to use Bartholomew as a key state witness, having unsuccessfully attempted to block the defence report obtained from Bodziac. The fact that the prosecution pair attempted to use and did in fact use Bartholomew, whose opinions were contradicted by the recognised top world expert, says something about prosecutorial integrity and more particularly their lack of understanding of forensic science.

How do Judges, Lawyers and Prosecutors deal with forensic science and science in general?

Judges and lawyers are not known for their expertise in science. Judges in the United States have been criticised for lacking the general scientific literacy required for full application of the Daubert standard (by which the admissibility of expert evidence is tested), and worse still, judges have been said not to recognise this lack of understanding.[22]

"There have to date been 329 post conviction DNA exonerations. Forty seven percent of these wrongful convictions are attributable in some way to unreliable forensic evidence being used against the defendant."[23]

"There is a struggle that the legal system has when it comes to accurately engaging with scientific evidence. The legal profession is generally not science-literate, nonetheless it is science-thirsty with inflated expectations of science theory (The CSI Effect) and a tendency to find comfort in alleged expert certainty. Defence lawyers have blunt tools to handle and counter scientific evidence including their extremely restricted scientific knowledge, limited resources and low impact adversarial arsenal."[24]

"As Consumers of science, lawyers including judges have very little understanding of the product they are buying."[25]

"In contexts where partisanship is elevated and the work is insulated from the normal systems of the science culture for checking and cancelling bias, then the reasons to trust, on which science depends, are undermined. Nowhere is this likely to be a more serious problem than in a litigation driven research setting, because virtually no human activity short of armed conflict or dogmatic religious controversy is more partisan than litigation."[26]

"Judges and lawyers are not known for their expertise in science."

Consider something as simple as communication between researchers who are on different sides in any litigation. Although there is no formal legal reason for it, many such workers cease communicating about their differences except through and in consultation with counsel. What could be more unnatural for normal research and what purpose does such behaviour serve other than to ensure that scientific differences are not resolved but are exacerbated?[27] This is my frequent experience in dealing with the state. The state forensic experts tend to be placed off limits to me, as is the state forensic laboratory.

The root causes of these systematic problems in the legal use of forensic science are revealed to be similar whenever they have been studied. The Innocence Project in the USA has shone an unusually bright light on the problem. Under the Daubert standard, judges are required to fulfil a gatekeeping role. Yet research shows that judges often lack the skills adequately to assess the quality of science presented in court.[28]

In fact, some judges, notably Chief Justice Rehnquist "deplored their being asked to become amateur scientists."[29] In South Africa, the resolve of the judiciary to evaluate state produced forensic evidence is patchy.

"Mainstream scientists collect data, analyse it and measure the degree to which the data is consistent with a given hypothesis. In addition, they share with the scientific community at large the analytical basis of their opinions. Forensic science offers evidence which is often lacking in empirical grounding and is presented with highly exaggerated levels of certainty. The reason for this is that forensic science was moulded by the needs of the court and the prosecution and not by the needs of good science. We now know from the Innocence Project that forensic evidence of a false, fraudulent or tainted nature is responsible for more than sixty percent of the wrongful convictions exposed by DNA testing."[30]

Research by the (American) Centre for Public Integrity has identified more than 2 000 cases in which prosecutorial misconduct has played a role in dismissal of charges, or reversal of convictions or sentences.[31]

This article argues that this deplorable state of affairs is due to the lack of accountability of, and the granting of immunity to,

EUPOL Afghanistan

prosecutors even if their actions are both illegal and improper.[32]

Consolidating all of this would lead us to the view that where there is no accountability, prosecutors see themselves as competitors where the need to win trumps all else, even the notion of justice. This is aided and abetted by a bench which I believe tends to be too scientifically illiterate to evaluate expert evidence and prevent these abuses.

"Judges in all accusatorial jurisdictions appear to varying degrees to be overly receptive to expert opinion adduced by the state. In circumstances that would seem to create a pressing need for the exclusion of incriminating expert evidence that is not demonstrably reliable, judges seem to be largely oblivious to problems with opinion evidence produced by institutionalised forensic sciences."[33]

In *S v Mthethwa*[34] the sitting judge ignored the fact that the investigating officer had destroyed important evidence and the fact that the information in the affidavits drafted by this individual were later denied in important aspects by the witnesses themselves when they testified under oath. In the same case, evidence by the state pathologist was shown to be demonstrably untrue in crucial aspects. This too passed without comment in the judgement. It would seem that any evidence is acceptable provided that it is incriminating to the defendant.[35]

Unfortunately, adversarial skirmishes involving expert evidence tend to focus on claims of custody, conflict of interest and witness credibility rather than on fundamental methodological and interpretative issues.[36]

"In a particularly shameful episode in the fingerprint challenge arena the case of *US v Rose* (a capital murder trial) stands out. In the first instance, the court ruled that fingerprint evidence was inadmissible under the Frye Standard. After severe pressure was brought to bear, the same judge reassessed the evidence and reversed his ruling.[37]

In general, the judicial response to fingerprint challenges has been somewhat negative. In at least one case, the court when addressing the evidence of David Stoney (possibly the most eminent forensic statistician in the legal system) had this to say. The court labelled his insights "valuable" but "ultimately problematic because they prove too much."[38]

Apart from the incomprehensibility of the statement, it is quite clear that the judge did not have the vaguest notion how to deal with the evidence. The attitude of the bench to the Daubert ruling[39] is in itself illuminating. In the first decade after Daubert, it can be seen that the judges used it frequently to exclude questionable scientific evidence in civil cases whilst they almost never excluded similar questionable forensic prosecution evidence in criminal cases.[40]

It is increasingly apparent that the law deals with scientific matters in an ad hoc and not particularly rational way. Nowhere is the evidence of C P Snow's Two Cultures more evident than in our law courts.[41]

Much of the problem lies in the fact that there is no accountability for the prosecution in criminal trials. Cost awards against the state would go a long way to curb unsatisfactory conduct of prosecution cases. In particularly egregious instances where there has been prosecutorial dishonesty the award could be made *de bonis propriis*.

It is concerning that so much invalid forensic evidence has come to light as a result of the illuminating effects of DNA analysis. However, there is much reason to suspect that such invalid forensic evidence may lie at the base of other convictions where unfortunately there is no DNA evidence to uncover the miscarriage.

There is little doubt that similar social conditions will produce similar detrimental effects on justice and there is no reason to believe that prosecutorial and police misconduct are not equally prevalent in South Africa. The courts in South Africa are in general very disinclined to hold the state to account. I have written elsewhere about the "junk science" that was advanced by the police ballistics "expert" in the Ashley Kriel murder inquest.[42]

Here we had a clear-cut example of scientific nonsense being paraded before the court (which consisted of a magistrate and a professor of forensic medicine who should have known better). Of particular concern was the fact that the state pathologist participated in the farce and did not raise any concern about the scientific travesty unfolding before his eyes. A rare example of how the system should work was provided by Traverso J who acquitted Shrien Dewani in terms of Section 174 when the prosecution evidence and forensics were truly appalling.[43]

There is a need for specialist courts and the use of expert assessors in the field of interest. There is a need for more forensic science laboratories away from police control. There is a need to make state forensics more transparent and to foster a proper academic approach to forensic science. At present, the forensic medicine and science departments can be readily seen as part of the prosecution. They are secretive and unco-operative and exhibit behaviour far from the prevailing norms in medicine in general and science in particular.

Until a start is made on these reforms, one can expect forensic science and medicine to be mired in the past and to be ready to contribute to state injustice. A

Endnotes

1 Justice Denied, David Klatzow, Zebra Press, 2014, pg 7
2 Justice Denied, supra, Chapter 1.
3 "Strengthening Forensic Science in the United States, A Path Forward". National Research Council of the National Academies, National Academies Press, Washington DC, 2009, pg xix (NAS Report).
4 P.L. No. 109-108, 119 Stat 2290 (2005).
5 Supra
6 A House with No Foundations, D Michael Risinger and Michael J Saks, Issues in Science and Technology, 22 November 2017
7 Risinger and Saks, supra, pg 3
8 Risinger and Saks, supra, pg 5
9 https://www.innocenceproject.org/ or https://cardozo.yu.edu/clinics-professional-skills/clinics/innocence-project
10 The New Forensics: Criminal Justice, False Certainty and the Second Generation of Scientific Evidence, Erin Murphy, Californian Law Review 95 (3) pg 720 – 797 (2007), pg 721
11 Murphy, supra, pg 745. See also Monahan and Walter 1986. Social Authority: Obtaining, Evaluating and Establishing Social Science in Law, UPa L. Rev. Vol 134 (1986).
12 Eric Lander, DNA Fingerprinting on Trial, Nature, Vol 339, pg 501 – 505 (1989)
13 Murphy Supra, pg 746 and Monahan and Walker, supra
14 The Feasibility of External Blind DNA Proficiency Testing II, Experiences with Actual Blind Tests I Forensic Science, Vol 48(1), Jan 2003, pg 32-40. Joseph L Peterson, Lin G, Ho M, Chen Y, Gaenssten RE
15 Commonwealth v Crews, 640 A 2d 395, 402, PA 1994
16 Murphy supra, pg 762, quoting from the Guardian (London) Sept 9, 2004
17 FBI Admits Flaws in Hair Analysis over Decades, Spencer S. Hsu, Washington Post, 18 April 2015
18 The Lucifer Effect, How Good People turn Evil, Philip Zimbardo, pub Rider Books division of Random House Group, 2007
19 Cruel Britannia, A Secret History of Torture by Ian Coban, Portobello Books, 2012
20 Secrets and Lies, A History of CIA Mind Control and Germ Warfare published by J R Books 2008
21 The author was engaged as a consultant for the defence in this case.
22 Law Science and Science Studies: Contrasting the Deposition of a Scientific Expert with the Ethnographics of Scientific Practice, David S Caudill, Southern California Interdisciplinary Law Journal, Vol 12: 85, pp 85 – 100 (2002) and Daubert v Merrel Dew Pharmaceuticals inc 509 US 579 (1993)
23 Judicial Responses to Challenges to Firearms-Identification Evidence: A Need for New Judicial Perspectives on Finality, Sarah Lucy Cooper. Thomas M Cooley Law Review, 31 (3) pp 457 – 488 (2014) Introduction.
24 Ibid
25 Cooper Supra, pg 463 and David L Faigman, Legal Alchemy : The Use and Misuse of Science in the Law, 2005, W H Freeman
26 D Michael Risinger and Michael J Saks, A House with No Foundations, Issues in Science and Technology, 11 February 2017
27 Risinger and Saks, Supra, pg 1
28 Balancing Legal Process with Scientific Expertise, Expert Witness Methodology in Five Nations and Suggestions for Reform Post-Daubert US Reliability Determinations, Andrew W Jurs, Marquette Law Review 95(4) 2012 pp 1332
29 Jurs, supra p 1335
See also "Judges, Juries and Scientific Evidence, Valerie P Hans 16 J L and Policy (2007), Sophia I Gatowski et al, Asking the Gatekeepers, A National Survey of Judges on Judging Expert Evidence in a Post-Daubert World. 25 L and Human Behaviour 433, 422 (2001).
30 Forensic Identification Science, A Summary of the theory, the Science and the Legal History, Micael J Saks, Hastings Law J, 49 (1998) pg 1071 - 1072
31 Imputed Liability for Supervising Prosecutions: Applying the Military Doctrine of Command Responsibility to Reduce Prosecutorial Misconduct. Geoffrey S Corn and Adam M Gershowitz, Berkley Journal of Criminal Law 14(2) pp 395 – 438 (2010)
32 Corn and Gershowitz, supra, pg 12
33 Gary Edmond and Mehera San Roque, The Cool Crucible" Forensic Science and the Frailty of the Criminal Trial, Current Issues in Criminal Justice, Vol 24 (1), July 2012, p 53
34 *S v Mthethwa*, High Court of South Africa, Western Cape Division, Case No: CC03/2014 (The author was engaged as a consultant for the defence in this case.)
35 The "Science" of Miscarriage of Justice, Gary Edmond, UNSW Law J Vol 37 (1), p 378 (2014)
36 Edmond and San Roque, supra, pg 56
37 United States v Rose, 672 F Supp 2d, 723, 724 (D Md 2009)
38 United States v Alteme No 99 – 8131 CR/SD F/a April 7, 2000
39 The ruling on admissibility of expert evidence stemming from the eponymous case in the United States.
40 Peter J Nenfeld, "The Near Irrelevance of Daubert to Criminal Justice and Some Suggestions for Reform, 95 AM J Public Health, S 107, S109 (2005)
41 C P Snow, The Two Cultures and the Scientific Revolution, The Rede Lecture 1959, Cambridge University Press
42 Justice Denied, David Klatzow, Zebra Press, pg 39 – 45 (2014). (The author was engaged as a consultant for the defence in this case.)
43 *S v Dewani*, in the High Court of South Africa, Western Cape Division, Cape Town, Case No: CC15/2014

Jon Crel

PSI SERVICES

Personalised IT Solutions for Professionals

PSI has been a proud supplier of IT services to the Advocate network for the past 20 years.
Your “one-stop shop” for all IT needs.

PSI also provides:

- JUTA Lan Version
- High speed fibre & Wi-Fi Connectivity
- All IT hardware and software
- Copiers and print consumables
- Office 365 and dictation software
- Cloud Backup

JUTA AND COMPANY (PTY) LTD

Microsoft 365

Wi Fi ZONE

Contact us : 086 110 1061

support@psiservices.co.za

www.psiservices.co.za