Guns for Hire?
The independence of forensic scientists and why it matters

Western Australian Forensic Science Forum 2024

Australian and New Zealand Forensic Science Society (WA Branch)

Friday 18 October 2024

The Hon. Justice Stephen Hall

Supreme Court of Western Australia

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THE INDEPENDENCE OF FORENSIC SCIENTISTS AND WHY IT MATTERS[1]

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On the early morning of 8 June 1995, the body of a young woman was discovered on the rocks at the Gap at Watsons Bay in Sydney. The Gap is notorious as a suicide destination. The assumption was made that, like many others before her, this young woman had chosen to end her life by jumping from the clifftop on to the rocks below.

The woman was identified as Caroline Byrne, a 24-year-old model. At the time of her death, she was in a relationship with Gordon Wood, who had reported her missing. Ms Byrne and Mr Wood had lived together for some years. Their relationship faced difficulties when Mr Wood was unable to secure employment. The relationship was renewed when Mr Wood found work as a driver for Rene Rivkin, a well-known stockbroker and businessman.

There were mixed reports regarding the strength of the relationship between Mr Wood and Ms Byrne prior to her death. Some people indicated that they were close and happy, and others suggested that Ms Byrne was unhappy and wished to terminate the relationship. Ms Byrne was known to have been suffering depression at the time she died. She had also previously attempted to commit

[1] I would like to acknowledge the assistance of my associate, Melanie Owens, in undertaking research for this address.

suicide. She had consulted a doctor and been referred to a psychiatrist. An appointment with a psychiatrist was to have occurred on the day she died.

The association between Mr Wood and Rene Rivkin aroused public interest in Ms Byrne's death. Mr Rivkin was a person whose personal and professional life attracted publicity, not all of which was favourable. A business in which Mr Rivkin had an interest had been the subject of a fire and there were allegations that the fire had been deliberately lit so that an insurance claim could be made. An investigation was being conducted by the Australian Securities Commission into that and other allegations regarding Mr Rivkin's business dealings. There was speculation that Ms Byrne's death might be connected to this investigation.

Mr Wood and Ms Byrne had been observed at a park adjacent to the Gap between 1 pm and 3 pm on the afternoon of 7 June 1995, that is the day before her body was found. The evidence indicated that Ms Byrne fell to her death at about 11.30 pm on 7 June 1995. Mr Wood claimed to have been at home at that time.

A coronial inquest was held in November 1997. The coroner returned an open finding in February 1998. Although suspicion attached to Mr Wood as to whether he had been somehow involved in Ms Byrne's death, the police did not consider that the known facts were sufficient to take any action. At that stage, whatever suspicions there may have been, the evidence was consistent with Ms Byrne having taken her own life.

The case remained a controversial one and public interest in it remained high. Articles appeared in newspapers, Mr Wood was interviewed on a television programme and the matter was raised in the NSW State Parliament.

A physicist, Associate Professor Rod Cross, became intensely interested in the case. Associate Professor Cross had been approached by the police in 1996 to express an opinion as to whether Ms Byrne may have been pushed off the cliff or

jumped. At that stage he expressed the view that Ms Byrne may have jumped. He later became convinced that he would be able to shed more light on the circumstances of Ms Byrne's death if given the opportunity to examine those circumstances in more detail. He took the initiative in pressing his views, including by writing to the New South Wales Coroner, the science writer of The Sydney Morning Herald, a journalist from The Sun Herald, the executive producer of Sixty Minutes, the Director of Public Prosecutions and, finally, the police. His efforts were rewarded when the police asked him to provide a new report.

Associate Professor Cross' area of expertise was in plasma physics, but he had an interest human movement and biomechanics. He had published and refereed papers on biomechanics. He had limited experience as a forensic scientist but considered that his skills could be adapted to the issues presented by the death of Ms Byrne. He later said:[2]

> The fact that I had never previously investigated a cliff fall didn't worry me in the slightest. Physicists are people who have learnt the necessary skills to undertake almost any project or to investigate almost any problem in physics, regardless of previous experience with the problem.

Associate Professor Cross came to play an active part in the renewed investigation. This included attending at the scene with a police officer in an attempt to determine the exact location of the body. Although it would seem unusual, the police apparently took no photographs of the scene at the time of Ms Byrne's death and the spot where her body was located was not the subject of any contemporaneous record. The position of the body, in particular the distance from the cliff face was relevant to whether it was possible that Ms Byrne had jumped to her death.

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[2] ***Wood v The Queen*** [2012] NSWCCA 21; (2012) 84 NSWLR 581, 621 [736].

Associate Professor Cross later admitted that he questioned the police officer who attended with him at the scene in 2004. He said that he remained at the top of the cliff and chatted to the police officer and 'quizzed him' regarding the location of the body. He told the police officer that his measurements and calculations pointed to another possibility and tried 'to argue my case but he wasn't convinced'. Nonetheless, for various reasons, he took the view that the body had been located at a point that was further from the cliff than originally believed. The police also came to share this view.

Associate Professor Cross became convinced that one possibility that would explain the location and orientation of Ms Byrne's body was that she had been thrown off the cliff by a strong man using a 'spear throw' technique. In order to test this theory, he obtained information regarding Mr Wood's level of fitness and drew conclusions from his ability to bench press weights as to his ability to throw an item of the same weight as Ms Byrne's body. He also set up experiments in which cooperative women were thrown by strong men into a swimming pool. His purpose was to measure the speed at which they were launched so that he could calculate how far out from the edge of the cliff a person of similar body mass would travel before hitting the rocks below.

These experiments were based upon an assumption that the person who threw Ms Byrne was able to take some forward steps before launching her, that Ms Byrne was conscious but not struggling and did not attempt to grab hold of the thrower or free herself from his or her grasp. There was no evidential basis for any of these assumptions. Although in the experiments the thrower did not, in most cases, end up also falling into the pool, the risk of falling off the cliff on a dark night with a struggling victim over an uneven surface was obvious.

Associate Professor Cross produced a number of expert reports over a six-year period. In his initial reports he concluded that jumping was a possible

explanation. However, in his final report he concluded that the only way that Ms Byrne could have ended up in the assumed location was if she was thrown by a 'spear throw' executed by a very strong man. He said that he understood that Mr Wood could bench press 100 kg. He believed that under ideal conditions, a person with this ability would be sufficiently strong to have thrown Ms Byrne the necessary distance.

Once Associate Professor Cross reached this conclusion it was decided by the police to prosecute Mr Wood for murder. The prosecution reasoned that this evidence, together with additional evidence of a witness who had seen Ms Byrne arguing with a man at a location near the Gap on the night of her death, was sufficient to exclude the possibility that Ms Byrne committed suicide and to implicate Mr Wood in her murder.

Mr Wood was charged with murder and tried in the NSW Supreme Court.[3] The evidence of Associate Professor Cross featured prominently at the trial. The trial proceeded over nine weeks and the jury deliberated for five days before finding Mr Wood guilty. He was later sentenced to imprisonment for 17 years, with a minimum term of 13 years. He lodged an appeal against his conviction.

After the trial, Associate Professor Cross published a book entitled '*Evidence of a Murder: How physics convicted a killer*'.[4] The book has been described as a comprehensive account by him of various aspects of the evidence and of his involvement in the investigation. As the title indicates, he believed that his own evidence had been critical in convicting Mr Wood. He also published the transcript of a lecture he had given on the same subject.[5]

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[3] ***R v Wood*** [2008] NSWSC 1273.
[4] Cross R, *Evidence for Murder: How Physics Convicted a Killer* (New South Publishing, 2009).
[5] ***Wood v The Queen*** 617 [716].

The book was published whilst the appeal was pending. One of the grounds of appeal was that fresh evidence relating to the expert opinion of Associate Professor Cross established that there had been a miscarriage of justice. The book was tendered on the appeal as part of that fresh evidence.

McClellan CJ at CL (with whom Latham and Rothman JJ agreed) said:[6]

> My reading of the book and the lecture leads me to the conclusion that if it had been available at the trial it would have significantly diminished Associate Professor Cross' credibility. In the book Associate Professor Cross makes plain that he approached his task with the preconception that, based on his behaviour as reported as Ms Byrne died, the applicant had killed her. He clearly saw his task as being to marshal the evidence which may assist the prosecution to eliminate the possibility of suicide and leave only the possibility of murder. The book is replete with recitations of his role in solving the problem presented by the lack of physical evidence and records how he was able to gather the evidence which enabled the prosecutor to bring proceedings against the applicant.

Later, his Honour said that the publication of the book had the consequence that Associate Professor Cross' opinion on any controversial matter could only be given minimal, if any, weight. His Honour noted that in the book Associate Professor Cross had referred to the expert witness code of conduct and had then said:[7]

> It is well known that experts called by the prosecution tend to support the prosecution case and experts called by the defence tend to support the defence case. If they did not, they would not be called to give evidence.

Associate Professor Cross later acknowledged that:[8]

> The expert might be tempted to come up with a result that pleases the police, given that they are paying for his or her services. Alternatively, the expert might be biased toward a certain outcome if he or she has been told by the police that other evidence indicates the suspect is guilty.

With some apparent irony, McClellan CJ then stated:[9]

> Having regard to some of the remarks in the book I am in no doubt that these problems confronted Associate Professor Cross. It is plain that Associate Professor Cross believed by reason of the information given to him by the police that the applicant was

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[6] ***Wood v The Queen*** 617 [717].
[7] ***Wood v The Queen*** 620 [731].
[8] ***Wood v The Queen*** 620 [731].
[9] ***Wood v The Queen*** 620 [731].

> guilty and he saw his role as adding credibility to the Crown case by providing expert evidence as to how [Ms Byrne] may have died.

Later in his reasons, McClellan CJ states:[10]

> Associate Professor Cross took upon himself the role of investigator and became an active participant in attempting to prove that the applicant had committed murder. Rather than remaining impartial to the outcome and offering his independent expertise to assist the court he formed the view from speaking with some police and Mr Byrne [Ms Byrne's father] and from his own assessment of the circumstances that the applicant was guilty, and it was his task to assist in proving his guilt. In my opinion if the book and the speech had been available to the defence and the extent of Associate Professor Cross' partiality made apparent, his evidence would have been assessed by the jury to be of little if any evidentiary value on any controversial issue.

The appeal was allowed, the conviction was quashed, and a verdict of acquittal was substituted. The ground relating to the expert evidence did not stand alone, but it played a significant part in the appeal.

I have spent some time setting out the details of this case because it illustrates the importance of the independence of expert witnesses. You may think that this case is an extreme one. You may take the view that the loss of objectivity in this case was so sustained and clear that it is a danger into which you would never fall. Perhaps for these reasons it is salutary to remember that the sincerity with which Associate Professor Cross approached his task was never doubted. It was accepted that at all times he believed that he was applying his skills to assist the police in solving a serious crime and bringing to justice a murderer. He had no personal pecuniary interest in the case.

Furthermore, the loss of objectivity only became fully apparent with the publication of the book and the lecture. Had Associate Professor Cross not succumbed to the temptation to tell the story of his involvement in the police investigation, his lack of independence may never have been exposed.

[10] ***Wood v The Queen*** 625 [758].

Nor can the lack of independence be attributed to ignorance of what is expected of an expert witness. Associate Professor Cross referred to the expert witness code of conduct in his book. He understood the need for independence and the risk that an expert would come to identify too closely with the interests of the party who has retained their services. Codes of conduct are often held up as means by which the independence of expert witnesses can be safeguarded. But this case illustrates that even an expert familiar with the code can lose their independence, perhaps without intending to.

Associate Professor Cross also showed some insight by noting that witnesses are chosen by the parties because they support that party's case. Of course, in many areas of science it is possible for experts to hold differing opinions whilst adhering faithfully to scientific principles. The danger here is that a casual observer will confuse cause with effect. Experts may be called because they have a particular opinion, but it should never be the case that the opinion is influenced by the interests of the party calling the expert. It is one thing to select an expert, it is quite another for the expert to adjust their opinion to suit the party retaining them.

The case also illustrates that loss of independence may be an incremental thing. An expert may start out with an entirely objective approach to the known facts but be drawn in to the imperatives of the party retaining them over time. The risk of this occurring must increase if the expert works as part of the investigative team rather than as an entirely independent consultant. The risk may also increase if the engagement continues over a lengthy period of time. The 'Silent Witness' pathologist who not only does the autopsy but effectively undertakes the whole investigation is, hopefully, a myth.

The challenge to the expert in the Wood case was that he saw the opportunity to apply his knowledge to help solve a very prominent unsolved case. The risk in

such a case is that the expert will find the prospect of being credited with solving the case an alluring one. The opportunity to burnish a reputation by solving a high-profile case may be difficult for some people to resist. This is well illustrated by the next case that I want to refer to.

Sally Clark and her husband were English solicitors who married in 1990. Their first child, Christopher, was born on 26 September 1996. He was an apparently healthy baby but died on the evening of 13 December 1996 while Mrs Clark's husband was out at an office party. She called an ambulance, but the baby was declared dead at 10.40 pm.

A number of bruises and a slight slit of the frenulum were discovered on a post-mortem examination. The pathologist considered that these were consistent with minor harm caused during resuscitation attempts. There was also evidence of an infection in the lungs and as a result the pathologist concluded that the cause of death was a lower respiratory tract infection. The case was treated as a case of sudden infant death syndrome (or cot death).

On 29 November 1997 Mrs Clark gave birth to a second child, Harry. He was three weeks premature but was a healthy baby. On 26 January 1998 both Mrs Clark and her husband were at home with Harry. Mr Clark left the room to prepare a bottle for a night feed, as Mrs Clark was supplementing breast feeding at that time. Whilst Mr Clark was out of the room the baby suddenly became unwell. Mrs Clark called her husband and then summoned an ambulance. When the ambulance arrived, there was no sign of life. Despite resuscitation attempts Harry was pronounced dead later that evening.

The same pathologist undertook a post-mortem examination. He found injuries he considered to be consistent with episodes of shaking. He concluded that shaking was the likely cause of death. This conclusion caused the pathologist to reconsider the cause of death in respect of Christopher. He re-examined materials

that had been retained and concluded that Christopher's death had also been unnatural and that there was evidence suggestive of smothering.

Mrs Clark and her husband were arrested on suspicion of Harry's murder. In a lengthy interview Mrs Clark gave a detailed account of the relevant events and strenuously denied shaking Harry or harming him in any way. She was later arrested on suspicion of the murder of Christopher and declined, on legal advice, to answer any further questions. She was charged with two counts of murder.

The prosecution case at trial pointed to a number of similarities in the death of each child which, it was suggested, went beyond coincidence. The prosecution submitted that there was no evidence in each case to suggest that the child had died from natural causes, thus the inference could safely be drawn that death had resulted from the act of a person in whose care the child was when he suddenly became unwell, namely Mrs Clark.

At trial the prosecution, in addition to the evidence of the pathologist, relied on three other expert witnesses. One of those witnesses was Professor Sir Roy Meadow, the Emeritus Professor of Paediatrics and Child Health at St James's University Hospital in Leeds. As this title would suggest, Professor Meadow was a highly eminent paediatrician. He had played a leading role in the identification of Munchausen Syndrome by Proxy in children admitted to hospital. He had been knighted for his services to child health.

Professor Meadow gave evidence regarding the possible explanation for the injuries found in the post-mortem examinations of Christopher and Harry. He concluded that Christopher's death was not from a lower respiratory tract infection, nor could it be classified as sudden infant death syndrome (SIDS). In his opinion it was not a natural death. Other witnesses came to a similar conclusion. However, the preponderance of the evidence was that the cause of Christopher’s death could not be ascertained. In these circumstances, evidence

relating to Harry's death was critical in enabling the jury to resolve any doubts arising from the medical evidence in respect of Christopher's death.

Professor Meadow said that Harry's death could not be classified as a SIDS death and that in his opinion the baby had not died a natural death. Other witnesses entertained the possibility of an unnatural death but were unable to reach a firm conclusion. One matter that was of importance was that there was no evidence of any illness or infection suffered by Harry that might have explained his death.

Professor Meadow also gave evidence about the statistical probability of two cot deaths occurring within the same family. At that time, the report of a government funded multi-disciplinary research team into sudden unexpected deaths in infancy was about to be published and Professor Meadow was writing the preface. In evidence he said that this report was the product of '[t]he most reliable study and easily the largest and in that sense the latest and the best' ever done in the United Kingdom. It was explained that there were factors that were relevant to the chance of a SIDS death within a given family; namely the age of the mother, whether there was a smoker in the household and the absence of a wage earner in the family. None of these factors had relevance to the Clark family.

Professor Meadow agreed that a figure of 1 in 8,543 reflected the risk of a single SIDS death within a family. A table from the report was placed before the jury. He was then asked if the report calculated the risk of two infants dying of SIDS in the same family by chance. His reply was '[y]es, you have to multiply 1 in 8,543 by 1 in 8,543 and I think it gives that in the penultimate paragraph. It points out that its approximately a chance of 1 in 73 million'. He added '[i]n England, Wales and Scotland there are about, say, 700,000 live births a year, so it is saying by chance that happening will occur about once every 100 years'.[11]

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[11] ***R v Clark*** [2003] EWCA Crim 1020 [96].

In cross-examination Professor Meadow was asked about his evidence regarding the improbability of two cot deaths in the same family and said '[t]his is why you take what's happened to all the children into account, and that is why you end up saying the chance of the children dying naturally in these circumstances is very, very long odds indeed, one in 73 million'.[12] He then added:[13]

> It's the chance of backing that long-odds outsider at the Grand National, you know; let's say it's 80 to 1 chance, you backed the winner last year, then next year there is another horse at 80 to 1 and it's still 80 to 1 and you back it again and it wins. Now, here we are in a situation that, you know, to get to these odds of 73 million you've got to back that one in 80 chance for four years running, so yes, you might be very, very lucky because each time it's just been a one in 80 chance and you know, you happened to have won it, but the chance of it happening four years running we all know is extraordinarily unlikely. So, it's the same with these deaths. You have to say two unlikely events have happened and together it's very, very, very unlikely.

Mrs Clark was convicted of both alleged murders and sentenced to life imprisonment. She appealed against her conviction unsuccessfully.[14] The Court of Appeal expressed some concern regarding the statistical evidence but held that the other evidence regarding the injuries to the children was sufficient to sustain the convictions.

In the UK, the Criminal Cases Review Commission has the power to review a conviction and refer a case back to the Court of Appeal and that occurred in this case.[15] On the second appeal there were essentially two issues.[16]

The first was that since the first appeal fresh evidence had been discovered in the form of samples that had been taken from Harry during the post-mortem. The existence of those samples had not been known to either the prosecution or the defence at the trial. On analysis it was discovered that some of these samples showed the presence of staphylococcus aureus, including in the spinal fluid. While staphylococcus aureus is a common bacterium and usually only the cause

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[12] ***R v Clark*** [2003] EWCA Crim 1020 [99].
[13] ***R v Clark*** [2003] EWCA Crim 1020 [99].
[14] See ***R v Clark*** [2000] EWCA Crim 54.
[15] See *Criminal Appeals Act 1995* (UK) s 9(1).
[16] ***R v Clark*** [2003] EWCA Crim 1020 [6].

of minor illness, an infection can in some circumstances be fatal. The presence of staphylococcus aureus in the spinal fluid, which is usually sterile, was a particularly significant finding.

The second issue related to the potential unfair impact of the statistical evidence given by Professor Meadow. I will come back to this shortly.

The Court of Appeal determined the appeal on the fresh evidence of the forensic samples. Based on that evidence, it was accepted that a death by natural causes of Harry could not be discounted. Further, given the equivocal nature of the evidence in respect of Christopher, that conviction was also cast into doubt. The Court of Appeal allowed the appeal and set aside both convictions. Mrs Clark was released from prison after serving three years. A decision was made by the Crown Prosecution Service not to pursue a retrial.

Although it was strictly unnecessary to determine the second issue, the Court of Appeal did consider the statistical evidence. The court noted that the table provided to the jury did not include an explanatory text that was included in the report. That text made clear that the purpose of the information was to identify families at higher risk of SIDS, to ensure the appropriate deployment of scarce healthcare resources and attempt to achieve changes in lifestyle or patterns of childcare that may reduce the risk. The report did not suggest that it provided statistical information that would enable diagnosis of an unnatural death in an individual case. The report also made clear that the figures did not take into account factors other than those referred to in the table. This could include any genetic factors that might predispose a child to breathing difficulties. The report ended with a warning '[w]hen a second SIDS death occurs in the same family, in addition to a careful search for inherited disorder, there must always be a very

thorough investigation of the circumstances - though it would be inappropriate to assume maltreatment was always the cause'.[17]

The Court of Appeal noted that none of those qualifications was referred to by Professor Meadow in his evidence to the jury and thus:[18]

> It was the headline figures of 1 in 73 million that would be uppermost in the jury's minds with the evidence equated to the chances of backing four 80 to 1 winners of the Grand National in successive years.

The Court of Appeal said that the evidence had inherent dangers. The jury were required to return separate verdicts on the two counts but the one in 73 million figure encouraged them to view the two counts together as a package. If the jury concluded that one or the other death was not a SIDS case (whether from natural causes or from unnatural causes), then the chance that the other child's death was a SIDS case was one in 8,543 and the one in 73 million figure was wholly irrelevant. In any event, juries know from their own experience that cot deaths are rare. The one in 8,543 figure could do nothing to identify whether or not the individual case was one of those rare cases. Generally, juries do not need evidence to tell them that two deaths in a family are much rarer still. The court said:[19]

> Putting the evidence of 1 in 73 million before the jury with its related statistic that it was equivalent of a single occurrence of two such deaths in the same family once in a century was tantamount to saying that, without consideration of the rest of the evidence, one could be just about sure that this was a case of murder.

As the Court of Appeal noted, the evidence was also subject to a statistical error known as the prosecutor's fallacy.[20] At the time of the trial, many press reports reported that the one in 73 million figure was the probability that Mrs Clark was innocent. In order to calculate the probability of Mrs Clark's innocence, the jury needed to weigh up the relative likelihood of the two competing explanations for

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[17] ***R v Clark*** [2003] EWCA Crim 1020 [100] - [101].
[18] ***R v Clark*** [2003] EWCA Crim 1020 [102].
[19] ***R v Clark*** [2003] EWCA Crim 1020 [175].
[20] ***R v Clark*** [2003] EWCA Crim 1020 [108].

the children's deaths. Murder was not the only explanation for the deaths. Although double SIDS deaths are very rare, double infant murder is likely to be rarer still.

The court concluded that the statistical evidence should never have been before the jury in the way it was left. If there had been a challenge to the evidence, the wisest course would have been for it to be excluded altogether. Whilst the impact of the evidence on the jury could not be known, the court said that they suspected that the graphic references by Professor Meadow to the chances of backing long odds winners at the Grand National may have had a major effect on their thinking. The court said that had it been necessary to do so, they would have concluded that the statistical evidence provided a quite distinct basis upon which the appeal would have been allowed.[21]

The story did not end there. The Royal Statistical Society had issued a public statement in 2001[22] and had written an open letter to the Lord Chancellor in 2002 criticising Professor Meadow's methodology.[23] The Society pointed out that the calculation of the 1 in 73 million figure was false and had no statistical basis. Professor Meadow's calculation was based on the incorrect assumption that two SIDS deaths in the same family are independent. The Society pointed out that there may be unknown environmental or genetic factors that predispose some families to SIDS. That being so, a second case in a family could be much more likely than would be the case in another, apparently similar family.

The General Medical Council (GMC) commenced proceedings to determine whether Professor Meadow was guilty of serious professional misconduct. The GMC found that he was guilty of such misconduct and ordered that he be struck

[21] ***R v Clark*** [2003] EWCA Crim 1020 [177] - [178].
[22] 'Royal Statistical Society concerned by issues raised in Sally Clark case', *Royal Statistical Society* (News Release, 23 October 2001).
[23] Peter Green, 'Letter from the President to the Lord Chancellor regarding the use of statistical evidence in court cases', *Royal Statistical Society* (23 January 2022).

off the medical register. The GMC concluded that Professor Meadow had acted beyond the limits of his expertise and had abused his position as a doctor in giving erroneous and misleading statistical evidence at Sally Clark's trial. The GMC said that he had undermined public confidence in doctors, who play a pivotal role in the criminal justice system as expert witnesses. The GMC accepted that Professor Meadow had not intended to mislead and was an eminent paediatrician. However, they said that it was his eminence and authority that gave his misleading evidence such great weight. Eminence was said to carry with it a unique responsibility to take meticulous care in cases of this grave nature. [24]

This outcome was not met with universal acclaim. The president of the Royal College of Paediatrics and Child Health described the GMC's decision to strike off Professor Meadow as 'astonishing'. He went on to say:[25]

> The one thing it will do is frighten any sensible doctor away from doing expert witness work, and the more eminent you are and the more important you are in terms of providing expert evidence the less likely you will be to provide it in future. There will be a huge knock-on effect on expert witnesses, both in child protection, which is bad for children, and right across the whole field of medicine, which is bad for the public.

In an article on BBC News, titled 'Meadow ruling 'risk to witnesses'', the Society of Expert Witnesses was reported as saying that the whole system of using witnesses in court needed to be radically overhauled. A spokesman for the society said that the GMC had:[26]

> [T]hrown the book at Professor Meadow for what is acknowledged to be a situation in which he did not intend to mislead. The severity of the penalty will cause many expert witnesses, particularly doctors, to reconsider whether to offer their services to the courts as expert witnesses.

An appeal by Professor Meadow was successful, largely on the basis that though his statistical evidence was misconceived and not soundly based, this did not

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[24] ***Meadows v General Medical Council*** [2006] EWCH 146 (Admin) [5], [49], [52], [56]; Clare Dyer, 'Professor Roy Meadow struck off', (2005) 331 *BMJ* 177, 177.
[25] Dyer 177.
[26] 'Meadow ruling 'risk to witnesses'', *BBC News* (16 July 2005).

impact on his professional ability to provide services to patients as a paediatrician. His conduct was said not to meet the standard of serious professional misconduct.[27]

Sally Clark did not fare so well. She died in her home in March 2007 from acute alcoholic poisoning.[28] She was aged 42. As a result of her case, the Attorney General ordered a review of hundreds of other cases, and two other women had their convictions overturned.[29]

It can fairly be suggested that the way in which Professor Meadow gave his evidence, and particularly the dramatic analogy he used, indicated that he had a commitment to the outcome and had become an advocate for the prosecution. As in the Wood case, there was no reason to believe that Professor Meadow intended to mislead, but his willingness to embrace calculations that favoured the prosecution suggests that his objectivity had been seriously compromised.

In neither of the cases I have referred to was there any suggestion that the experts were motivated by malice or anything other than a good faith intention to assist the courts in achieving justice. In both cases, the witnesses were academics with accepted qualifications in their fields. It is, however, noteworthy that in both cases, they might be thought to have suffered from hubris in seeking to apply their knowledge to a discipline with which they had less familiarity. In the case of Associate Professor Cross, the field of biomechanics and in the case of Professor Meadow, the field of statistics. It is easy to see how the temptation to take what might be seen as a next obvious step can be given in to. The risk is that taking that step will not only take the witness into an area in which they are not

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[27] ***Meadow v General Medical Council*** [2006] EWCH 146 (Admin), upheld on appeal in ***Meadow v General Medical Council*** [2006] EWCA Civ 1390.
[28] Sara Gaines & David Pallister, 'Sally Clark's death accidental, coroner rules', *The Guardian* (7 November 2007).
[29] Clare Dyer, 'Mother convicted of killing her children is freed on appeal', (2005) 330 *BMJ* 861, 861.

an expert and may make mistakes, but also that the willingness to take that step can indicate a loss of independence.

The courts are tribunals of facts, not opinions. Mere opinions are not admissible in evidence. The courts have long recognised an exception to this rule for experts who through experience or learning have acquired knowledge in a recognised discipline that is unlikely to be known by ordinary members of the public. Experts have, therefore, a particularly privileged position. That privilege assumes that in giving their evidence, experts will base their opinion only on the facts and the logical conclusions that can be drawn as a matter of the application of scientific principle to those facts.

Independence is not a prerequisite for admissibility of expert evidence. If it was, then the expert evidence given by police officers in such fields as handwriting, fingerprints and ballistics would likely be excluded by reason of the close connection that police officers have with the prosecution. Because independence of experts does not have to be proven as a basis for admissibility, it can often be overlooked or minimised as a matter of significance. However, it should not be forgotten that proven lack of independence can result in a witness being so significantly compromised that their evidence is given no weight by the court.

The obligations of an expert witness were discussed by Cresswell J in ***The Ikarian Reefer*** case.[30] They may be summarised as follows:

1. Expert evidence presented to the court should be, and should be seen to be, the independent product of the expert, uninfluenced as to the form or content of the exigencies of the litigation.
2. An expert witness should provide independent assistance to the court by way of objective unbiased opinion in relation to matters within his expertise. An expert witness should never assume the role of an advocate.

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[30] ***National Justice Compania Naviera SA v Prudential Assurance Co Ltd (The Ikarian Reefer)*** [1993] 2 Lloyd's Rep 68 [81] - [82].

3. An expert witness should state the facts or assumptions upon which his opinion is based. He should not omit to consider the material facts which could detract from his concluded opinion.
4. An expert witness should make it clear when a particular question or issue falls outside his expertise.
5. If an expert's opinion is not properly researched because he considers that insufficient data is available, then this must be stated with an indication that the opinion is no more than a provisional one. In cases where an expert who has prepared a report cannot assert that the report contains the truth, the whole truth and nothing but the truth without some qualification, that qualification should be stated in the report.
6. If, after exchange of reports, an expert witness changes his view on a material matter, having read the other side's expert report, or for any other reason, such change of view should be communicated (through legal representatives) to the other side without delay and when appropriate to the court.
7. Where expert evidence refers to photograph, plans, calculations, analyses, measurements, survey reports or other similar documents, these must be provided to the opposite party at the same time as the exchange of reports.

These principles are now reflected in the practice directions of most Australian courts. The WA Supreme Court's Consolidated Practice Directions contain the following:[31]

> 1. The purpose of using expert evidence is for the Court to receive the benefit of the objective and impartial assessment of an issue from a witness with specialised knowledge. The Court is often assisted by expert evidence where the subject matter of the proceedings is complex.

[31] Supreme Court of Western Australia Consolidated Practice Directions, ‘Expert Evidence’, 4.5.2.

2. An expert witness may be retained to give opinion evidence in the proceeding, or, in certain circumstances, to express an opinion that may be relied upon in alternative dispute resolution procedures such as mediation. In some circumstances an expert may be appointed as an independent adviser to the Court.

3. Parties and their legal representatives should never view an expert witness retained (or partly retained) by them as that party's advocate, and should never attempt to pressure or influence an expert to conforming his or her views to the party's interests.

4. Parties and legal representatives should be cautious not to have inappropriate communications when retaining or instructing an independent expert, or assisting an independent expert in the preparation of his or her evidence.

This raises an issue I would now like to turn to - whether communications between lawyers and the experts they retain can compromise independence.

Whitehouse v Jordan[32] was a case about the birth of a child that went wrong and left the child with serious injuries. The child's mother, Mrs Whitehouse, alleged professional negligence against her obstetrician, Mr Jordan. Professor Sir John Stallworthy was retained as an expert and gave a report saying that Mr Jordan was not negligent and, to the contrary, that he had dealt with the case 'with courage and skill'. However, he later changed his position and joined with another expert in holding that Mr Jordan was negligent. That joint report was subject to criticism and was shown to be mistaken on some important points. In the Court of Appeal, Lord Denning MR described one of the issues with the reports in the following terms:[33]

> In the first place, their joint report suffers to my mind from the way it was prepared. It was the result of long conferences between the two professors and counsel in London and it was actually 'settled' by counsel. In short, it wears the colour of special pleading rather than an impartial report. Whenever counsel 'settle' a document, we know how it goes. 'We had better put this in', 'We had better leave this out', and so forth.

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[32] ***Whitehouse v Jordan*** [1980] 1 All ER 650.
[33] ***Whitehouse v Jordan*** [1980] 1 All ER 650, 655.

His Honour then referred to a 'striking instance' of this problem where lawyers had blacked out some lines of a report which had referred to there being no negligence.

On a further appeal to the House of Lords, Lord Wilberforce said this:[34]

> One final word. I have to say I feel some concern as to the manner in which part of the expert evidence called for the plaintiff came to be organised. This matter was discussed in the Court of Appeal and commented on by Lord Denning MR. While some degree of consultation between experts and legal advisers is entirely proper, it [is] necessary that expert evidence presented to the court should be, and should be seen to be, the independent product of the expert, uninfluenced as to form or content by the exigencies of litigation. To the extent that it is not; the evidence is likely to be not only incorrect but self-defeating.

Lawyers will often say that there is no property in witnesses. This aphorism is usually referred to in connection with there being no prohibition on one party contacting and speaking to witnesses to be called by the other party. But it could equally be applicable in considering the role to be played by experts. The fact that a witness is approached, retained and remunerated by one party to proceedings does not give that party any right to control what evidence the witness will give.

There may be a legitimate role for counsel and solicitors to play in formulating appropriate questions to ensure that the evidence of the expert will be relevant to the issues in the case. But lawyers and experts should be careful to avoid any communications which might suggest that the expert's report has been shaped or edited in order to produce a result which is more favourable to the party calling them.

In ***Phosphate Co-operative Co of Australia Pty Ltd v Shears***,[35] the plaintiff relied on a report written by an accountant. From an early stage, there were interactions,

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[34] ***Whitehouse v Jordan*** [1981] 1 WLR 246, 256.
[35] ***Phosphate Co-operative Co of Australia Pty Ltd v Shears*** [1989] VR 665.

dealings and discussions between the plaintiff company and the accountant, including solicitors and counsel, who were briefed to advise the company. It became apparent that both the company and its advisors, including its lawyers, were actively involved in drafting the expert's report. Some of the revisions were said to make the report more understandable, however, other revisions tended to give the impression that the report contained a valuation when it did not. Brooking J found that the expert had been influenced to change his opinion by one of the company's solicitors. His Honour said:[36]

> It is impossible to lay down specific rules dealing with communications between the expert, on the one hand, and the company and those representing it, on the other: everything depends on the circumstances. The guiding principle must be that care should be taken to avoid any communication which may undermine, or appear to undermine, the independence of the expert. What happened here was quite unsatisfactory … I think the present case should serve as a model of what ought not to be done. The sooner experts and their clients realise this, the better. The interests of [the company's] shareholders would have been better served if, instead of their money being spent on the procuring of the [expert's] report, that report had never been placed before them.

In ***Universal Music Australia Pty Ltd and Others v Sharman License Holdings Ltd and Others***,[37] the Federal Court was concerned with the operation of an internet peer-to-peer file sharing system. One of the issues in dispute related to how the program operated to search for files. A United States expert was called in this regard. He was described as being obviously well qualified to give expert evidence. However, during the trial, it became apparent as a result of emails between the solicitor for the defendant and the expert, that his report had been amended. The solicitor had crossed out a sentence in the report and suggested a different sentence. The expert replied, 'I was not aware of this, even after our testing. But if you say it is so, then fine by me'. He left the solicitor's words in the draft. Wilcox J concluded that the expert was prepared to seriously

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[36] ***Phosphate Co-operative Co of Australia Pty Ltd v Shears*** [1989] VR 665, 683.

[37] ***Universal Music Australia Pty Ltd and Others v Sharman License Holdings Ltd and Others*** [2005] FCA 1242; 222 FCR 465.

compromise his independence and intellectual integrity and that in those circumstances, it might be unsafe to rely upon his evidence in relation to any controversial matter.[38]

There are many other cases, both in Australia and other common law jurisdictions which illustrate how an expert can be completely discredited by a loss of independence. In one UK case, the judge said that the expert had failed in his duties to such an extent that for him it might be said that ***The Ikarian Reefer*** was a ship that passed in the night.[39]

I would not, however, wish to leave the impression that communications with lawyers are always to be avoided, or kept to a minimum. In ***Harrington-Smith v Western Australia (No 7)***,[40] a native title case in the Federal Court, an issue arose about the extent to which lawyers should have input into the preparation of expert reports. In that case many of the expert reports displayed little or no attempt to address in a systematic way the requirements for admissibility. Lindgren J said:[41]

> Lawyers **should** be involved in the writing of reports by experts: not, of course, in relation to the substance of the reports (in particular, in arriving at the opinions to be expressed); but in relation to their form, in order to ensure that the legal tests of admissibility are addressed. In the same vein, it is **not** the law that admissibility is attracted by nothing more than the writing of a report in accordance with the conventions of an expert's particular field of scholarship.
>
> ….
>
> Unfortunately, however, in the case of many of the present reports, it is difficult to avoid the impression that no attempt at all has been made to address the criteria of admissibility of expert opinion evidence. The difficulty of my task is increased as a result. My impression is that in some cases, beyond the writing of an initial letter of instructions to the expert, lawyers have left the task of writing the reports entirely to the expert, even though he or she cannot reasonably be expected to understand the applicable evidentiary requirements. Such a course may have been followed because of a commendable desire to avoid any possibility of suggestion of improper influence on the author. But I suggest that the distinction between permissible guidance as to form and as to the requirements of s 56 and 79 of the Evidence Act, on the one hand, and impermissible influence as to the content of a report on the other hand, is not too difficult to observe. It does not serve the interests of anyone, including those of the

[38] ***Universal Music Australia v Sharman License Holdings*** 518 [231].
[39] ***Bank Of Ireland v Watts Group Plc*** [2017] EWHC 1667 (TCC) [70] (Coulson J).
[40] ***Harrington-Smith v Western Australia (No 7)*** (2003) FCA 893; (2003) 130 FCR 424.
[41] ***Harrington-Smith v WA*** 427 [19], 429 [27].

> expert witness, to deny him or her the benefit of guidance of the kind mentioned. (original emphasis)

The Federal Court's Expert Evidence Practice Note states that parties and their legal representatives should never view an expert witness retained (or partly retained) by them as the party's advocate or 'hired gun'. Equally, they should never attempt to pressure or influence an expert into conforming his or her view with the party's interests.[42]

There is always a danger that experts, particularly those who are less experienced in giving evidence in courts, will be tempted, consciously or subconsciously, to provide the party who is retaining them with the answers that they know will support their case. Ultimately, however, the risk to the reputation of an expert will not be worth any benefit that might flow from being cooperative. It is truly a Faustian pact to acquire short-term gain or fame at the greater ultimate cost of your professional reputation. That reputation once lost can never be recovered.

However, it must be acknowledged that for many eminent experts, the prospect of giving evidence in a court and being challenged as to your expertise and methodology is scarcely an attractive one. If experts also run the risk that if they get it wrong, they might be the subject of disciplinary proceedings or some other action, these factors may weigh heavily against providing assistance to the courts. That would be a great loss to the justice system.

The balance between ensuring that the independence of experts is safeguarded and that experts are not deterred from giving evidence must be carefully maintained. This requires a conscious effort not only on the part of experts themselves, and the lawyers who retain them as witnesses but also by the courts. The cases I have referred to should act as salutary lessons for all concerned. Where independence is compromised to the extent illustrated by those cases, not

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[42] Federal Court of Australia, *Expert Evidence Practice Note (GPN-EXPT)*, [3.1].

only do experts lose their reputations but very serious miscarriages of justice can occur.

We live in a world where science is under threat. Extraordinary conspiracy theories quickly gain currency. Scientists are no longer afforded the respect they deserve and even established scientific theories are considered by many people to be contestable. A stark example of this has occurred recently in the United States presidential election. Allies of one of the presidential candidates have made comments to the effect that the incumbent Democratic Party is capable of controlling the weather and that recent hurricanes in that country have been politically manipulated.[43] Once, such absurd claims would have died as soon as they were uttered but in the age of the internet and in a world in which truth is said to be relative, these claims have been given credence. Meteorologists began receiving abusive emails, including death threats. One meteorologist felt obliged to respond to an online threat by saying 'murdering meteorologists won't stop hurricanes. I can't believe I just had to type that'.[44] The Federal Emergency Management Authority was obliged to set up a rumour response website to counter the misinformation.

It is important to remember that independence is the foundation not only of the credibility of individual experts but of science as a whole. Where experts compromise their independence, they not only bargain away their own reputations but imperil the reputation of science as a bastion of objective truth.

Hon. Justice Stephen Hall
Supreme Court of Western Australia

18 October 2024

[43] Layla Ferris, 'No, the government is not controlling the weather. "It's so stupid, it's got to stop," Biden says', *CBS News* (9 October 2024).
[44] Oliver Milman, "It's mindblowing': US meteorologists face death threats as hurricane conspiracies surge', *The Guardian* (11 October 2024).