

Forensic Science Evidence – A Consumer Perspective

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1. Experts, Consumers and Stakeholders

Lawyers, the courts, criminal justice professionals in general (including, in certain respects, the police), and – more abstractly – ‘the criminal justice system’ can be regarded as ‘consumers’ of forensic science.

I invoke the ‘consumer’ model not to endorse it, but rather to see how far it can take us as an analytical device when thinking about the challenges of applying science to the administration of criminal justice. In brief, there are three major limitations of the market model for our purposes:

(i) *Subjective preferences – the ‘customer is always right’:*

The market model posits a naïve conception of consumer satisfaction, according to which the market efficiently registers consumer preferences through their market activity. Consumers want the goods they are prepared to pay for; and the intensity of their preferences is measured by *how much* they are prepared to pay. Yet expertise poses a radical challenge to this framework assumption. What if consumers *don’t know what they want*?

This is essentially a problem of asymmetrical information. Who can reliably evaluate the qualities of expertise, other than another expert? Non-experts are poorly positioned to make sound judgements of quality owing to informational asymmetries (they don’t know what good science looks like). In this state of ignorance, consumers may latch onto proxies for quality, which in fact do them (and third parties) a great disservice. For example, the “best” expert witness may be the one who cuts a dashing figure in court and always comes over as confident and unequivocal, rather than the one with the best science how admits to areas of uncertainty, etc.

(ii) *Stable goods:*

Forensic science services are not stable in this elementary sense. Rather, scientific evidence is a dynamic co-production in which consumers as well as suppliers play a role in shaping the evidential product.

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The point I want to emphasise here is more fundamental than questions of (adversarial) procedural design. It goes back to the fact that all factual investigation is goal-orientated. Forensic investigators are *looking for something*, whether that be incriminating evidence, or exculpatory evidence, either or both. The results of scientific testing are crucially dependant on the information or assumptions on which they are based, and for this contextual information experts are always more or less reliant on the professionals directing the investigation. *Garbage in, garbage out*. No matter how skilled and careful the expert is at doing their job, the quality of the evidence they produce is nearly always predicated on other people's judgements and decision-making. Often, the quality of expert evidence is dependant on the activities of whole teams of individuals.

(iii) *Negative externalities*:

The 'stakeholders' in forensic science extend beyond the immediate parties and the instant case. One area of potential deficit is lack of investment in R & D, which may help to keep unit costs down and promote profitability in the short term but adversely affects the quality of forensic science in the long run, through undetected errors or lost opportunity costs or both. However, externalities are not limited to 'local' effects on forensic science institutions and practice. Indeed, it can fairly be said that *everybody in society* is a stakeholder in good quality forensic sciences, because the quality of justice is everybody's concern. This concern is simultaneously metaphysical and tangible. The conviction of an innocent person should weigh on the consciences of every adult in whose name the court pronounced sentence; failure to convict the guilty affects the security of all past and future victims, etc.

Ultimately, the continued credibility and viability of a functioning legal system is at stake. The consumer model of forensic sciences, myopically focused on the immediate transaction, fails to account for external impacts on the full range of stakeholder interests, which could be both far-reaching and very serious.

Even at this level of generality, one substantive conclusion might readily be inferred from this analysis. Deeply embedded structural problems of this nature are most unlikely to yield to simple, single-track solutions. Silver bullet remedies should be approached with a healthy dose of scepticism.

2. The Law's Incipient Forensic Strategy – 'Pragmatic Responsibilisation'

The traditional response of the law to the challenges posed by scientific evidence might be characterised as a strategy of 'pragmatic responsibilisation'.

The strategy is pragmatic, inasmuch as there has never been a thorough-going, root-and-branch review of the reception of forensic science evidence in English (or Scottish) criminal proceedings. Instead, we encounter a long-cultivated legal-cultural practice of muddling through on a case-by-case basis.

The responsabilisation component of the strategy is comprised of two, mutually reinforcing tendencies.

The *Pontius Pilate tendency* – the law essentially disavows any responsibility for the validity or reliability of scientific evidence admitted into criminal trials, beyond minimal tests of logical relevance and expert competency:

- (i) there is no special test of validity, over and above (minimal, threshold) relevance;

R v Robb (1991) 93 Cr App R 161, CA

“Other Western European countries did not receive such evidence. There were only a handful of others, and they were in this country, who shared Dr Baldwin’s opinion. He had published no material which would allow his methods to be tested or his results checked. He had conducted no experiments or tests on the accuracy of his own conclusions. Despite all this... Dr Baldwin was led by his experience and training to believe that his conclusions were reliable.... Dr Baldwin’s reliance on the auditory technique must, on the evidence, be regarded as representing a minority view in his profession but he had reasons for his preference and on the facts of this case he was not shown to be wrong.”

- (ii) experts require no special training, accreditation or qualifications. An expert is an expert if, by their own self-certification, they have the knowledge and/or skills of an expert.

R v Silverlock [1894] 2 QB 766, 771, CCR, per Lord Russell CJ:

“The question is, is he *peritus*? Is he skilled? Has he an adequate knowledge? Looking at the matter practically, if a witness is not skilled the judge will tell the jury to disregard his evidence. There is no decision which requires that the evidence of a man who is skilled in comparing handwriting, and who has formed a reliable opinion from past experience, should be excluded because his experience had not been gained in the way of his business.”

Closely related to the Pontius Pilate tendency is the *scapegoating tendency*, which emerges when things are perceived to have gone wrong, a.k.a. ‘miscarriages of justice’. The traditional legal (public) response is to single out individual experts as rogue operators. Once the bad apples have been identified and removed, the integrity of the barrel has been preserved and reaffirmed, and we can all continue as before placing significant reliance on scientific evidence in criminal prosecutions and convictions.

The legal strategy of pragmatic responsabilisation generates casualties – collateral damage, if you will – according to a fairly predictable, profoundly skewed pattern. Pontius Pilate has already been careful to wash his hands in advance, so the scapegoat must generally be found beyond the ranks of lawyers and criminal justice professionals.

The jury are responsible for returning a verdict of guilty, now shown to be erroneous, but lay jurors can hardly be blamed for trusting the pronouncements of an expert who is only in court on the premiss that the jury need the expert's help. Which leaves...? You guessed it! Most of the scientists whose names are now yoked in infamy with notorious miscarriages of justice were at least partly the authors of their own (and others') misfortune. But it is certainly reasonable to question whether, in every case, they were *entirely* responsible for erroneous verdicts, or whether they too easily became the legal system's sacrificial lambs.

3. Consumption of the NRC/NAS Report in the UK

The roots of the common law system extend into our legal heritage for five centuries or more. They are at least as old as the Enlightenment and the birth of the physical sciences; they are *much* older than any self-conscious discipline of 'forensic science', and have characterised English (and Scottish) procedural law for the entirety of the modern period.

Buckley v Rice Thomas (1554) 1 Plowden 118, CB, 124-5, per Saunders J:

“[I]f matters arise in our law which concern other sciences or faculties, we commonly apply for the aid of that science or faculty which it concerns. Which is an honourable and commendable thing in our law. For thereby it appears that we do not despise all other sciences but our own, but we approve of them and encourage them as things worthy of commendation. And therefore...in a case that came before the Judges, which was determinable in our law, and also touched upon the civil law, they were content to hear Huls, who was a batchelor of both laws, argue and discourse upon logic...as men that were not above being instructed and made wiser by him. And in an appeal of mayhem the Judges of our law have used to be informed by surgeons whether it be a mayhem or not, because their knowledge and skill can best discern it.”

One virtue that simply cannot be denied to the common law approach to expert evidence is resilience.

Yet it is fair to say that the pressure for reform does now appear to have reached a crescendo, with several important, potentially mutually reinforcing strands conceivably creating a perfect storm:

- (i) miscarriages of justice involving scientific evidence and expert witness testimony have seemingly become more frequent (this could well be a function of increasing usage and new forensic technologies);
- (ii) more sophisticated analysis discernable in at least some CA decisions, with an appreciation of the *systemic* nature of the problems, which cannot simply be ascribed to the carelessness or incompetence of individual experts;

(iii) case law, and now CrimPR, articulates the ethical responsibilities of all experts:

R v B(T) [2006] 2 Cr App R 3, [2006] EWCA Crim 417 at [176]
“We desire to emphasise the duties of an expert witness in a criminal trial, whether instructed by the prosecution or defence... We emphasise that these duties are owed to the court and override any obligation to the person from whom the expert has received instructions or by whom the expert is paid. It is hardly necessary to say that experts should maintain professional objectivity and impartiality at all times.”

Criminal Procedure Rules 2005, Rule 33.2 - Expert's duty to the court:

- (1) An expert must help the court to achieve the overriding objective [i.e. “dealing with a criminal case justly”] by giving objective, unbiased opinion on matters within his expertise.
- (2) This duty overrides any obligation to the person from whom he receives instructions or by whom he is paid.
- (3) This duty includes an obligation to inform all parties and the court if the expert’s opinion changes from that contained in a report served as evidence or given in a statement...

Setting out these responsibilities in an official formulation may generate more serious discussion about, e.g., just how “objective” science can be in a dynamic adversarial environment;

(iv) many commentators have been calling for reform, developing a now very extensive critical literature in the UK and the USA;

(v) there are comparative common law models upon which to draw, not only *Daubert* in the USA, but statutory developments in Australia and the jurisprudence of the Canadian Supreme Court (which has a respected tradition of leadership in the common law world);

(vi) official reviews come around every once in a while, but the HC Science and Technology Committee’s report on *Forensic Science* (2005) was notably forthright in its condemnation of the existing laissez faire approach to admitting expert evidence (and lawyers were on the receiving end of much of this criticism, for their perceived complacency and fatalism);

House of Commons Science and Technology Committee, *Forensic Science on Trial – Seventh Report of Session 2004-05*, HC 96-I (TSO, 29 March 2005) at [140], [142]:

“During the course of this inquiry we heard much evidence to suggest that the weight ultimately attached to expert evidence by juries is determined in significant part by the way in which the evidence is presented.... We are disappointed to discover such widespread acknowledgement of the

influence that the charisma of the expert can have over a jury's response to their testimony, without proportional action to address this problem. If key players in the criminal justice system, including the police and experienced expert witnesses, do not have faith in a jury's ability to distinguish between the strength of evidence and the personality of the expert witness presenting it, it is hard to see why anyone else should. There is clearly no easy answer to this problem, but that does not justify the complacent attitude of the CPS [Crown Prosecution Service]."

(vii) these pressures prompted the Law Commission to re-examine basic questions of admissibility in LCCP No 190, which provisionally floats the idea of a *Daubert*-style gatekeeping function for English judges;

(viii) other areas of procedural law traditionally regulated by common law precedents have recently undergone "mini-codifications", e.g. hearsay, character evidence, CrimPR itself.

(ix) these relatively technical legal developments might conceivably be influenced by diffuse changes in social attitudes towards forensic science, loosely indicated by "the CSI effect". (Never underestimate the importance of entertainment!)

This sketches in some of the 'local' UK context forming a backdrop to our reception of the NRC/NAS report on the forensic sciences.

Law is, of course, notoriously parochial in terms of its jurisdictional preoccupations and affiliations. Science is not jurisdiction-specific in this way, and neither is forensic science *in its specifically scientific components*. The NRC/NAS concluded that:

"[D]isparities between and within the forensic science disciplines highlight a major problem in the forensic science community: The simple reality is that the interpretation of forensic [science] evidence is not always based on scientific studies to determine its validity. This is a serious problem. Although research has been done in some disciplines, there is a notable dearth of peer-reviewed, published studies establishing the scientific bases and validity of many forensic methods." (NRC, 2009: S-6)

If this is true of forensic sciences in the USA, there is no reason to think that it would not equally be true in the UK. The NRC is not referring to a dearth of *American* "published studies establishing the scientific bases and validity of many forensic methods"; it is referring to the absence of *any* such research base anywhere.

Further important conclusions of the NRC could just as easily have been written about UK forensic sciences (or so it appears, from a legal perspective), eg:

"[T]he quality of forensic practice in most disciplines varies greatly because of the absence of adequate training and continuing education, rigorous mandatory

certification and accreditation programs, adherence to robust performance standards, and effective oversight. These shortcomings obviously pose a continuing and serious threat to the quality and credibility of forensic science practice.” (NRC, 2009: S-5).

At any rate, the issue is not regulatory standards *per se*, but lawyers’ and courts’ abilities, as consumers, to interpret these schemes as reliable signals of quality, and this simply replays the inherent asymmetries of expertise problem, with lawyers needing to get experts to interpret for them the meaning of experts’ (ostensible) credentials.

In short, the NRC/NAS report probably does have significant direct implications for UK forensic practice; and it won’t be long before enterprising defence lawyers, amongst others, pick up on this fact. If anything, the UK legal systems start behind the curve, because they have not had the decade or more of post-*Daubert* experience of judicial gatekeeping scrutiny over scientific validity on which US (federal and many state) judges and lawyers can draw.

4. Conclusions: Forensic Science Credit Crunch?

After a very long build-up, have we now, finally, reached the forensic science credit crunch? Even now, I think there is a risk of getting carried away in the moment. The lesson of history is that the law is far more stable and resilient to periodic “panics” than many commentators seem to appreciate. Still, it is certainly *possible* that it will be different this time. The credit crunch, that some had been predicting for a long time (didn’t Marx say something to the effect that capitalism would eat itself?), did finally come and the repercussions are unarguably serious.

If the forensic science credit crunch is nigh, the question becomes: what, if anything, can be done to engineer a soft(er) landing?

I don’t believe in silver bullets, but I do have some hopefully constructive observations which, taken together or even in isolation, might conceivably cushion the impact:

(i) The task of improving forensic sciences needs to be a genuine partnership between scientific/technical experts and lawyers, at all levels.

Pragmatic responsabilisation is not really working for anybody. Whilst retaining a sensible division of labour, lawyers and scientists need to know enough about each others’ enterprises to communicate effectively, in and out of the courtroom.

The partnership can never be equal, because forensic science must serve justice, not the other way around. This is the sanctified order of priorities. All the participants in the system need to understand their proper places within it, and professional responsibilities should be allocated accordingly.

This diagnosis obviously has direct implications for education, training and professional development. In terms of reforming procedural law and forensic practice, it would be a gross dereliction of duty for lawyers simply to tell forensic scientists to go away and come back when they've got it all sorted out (and woe betide them if they haven't when they say they have!).

(ii) *Some issues cannot be resolved through adversarial litigation (though many can).*

Even as a (critical) supporter of adversarialism, I recognise that not all questions pertaining to scientific validity and expertise can be resolved within the context of litigation. This is primarily because by the time there is litigation there is already a legal dispute, and this both constrains and potentially distorts the evaluation of scientific evidence.

“[T]he judicial system embodies a case-by-case adjudicatory approach that is not well suited to address the systematic problems in many of the various forensic science disciplines. Given these realities, there is a tremendous need for the forensic science community to improve. Judicial review, by itself, will not cure the infirmities of the forensic science community” (NRC, 2009: 3-20).

A distinction can be drawn between “legislative facts” and “adjudicative facts”. The former ideally need sorting out in advance, for example by formal legislation, case law precedents or the directives of regulators or professional bodies. Litigation organised around the resolution of a particularised dispute is not a good vehicle for debating or resolving broad questions of scientific validity and policy. (Note: this is true in general terms, and would apply also to legal systems predicated on “inquisitorial” principles; adversarialism only exacerbates the mismatch.)

Adjudicative facts, by contrast, are best resolved through (adversarial) litigation. Did the expert follow protocol on this particular occasion? Are the expert's conclusions sound, and what is their probative value, in relation to the facts of this particular case? These issues need to be subject to particularistic, critical investigation; they cannot be resolved at the level of aggregate generalisations.

(iii) *Taking evidence-based policy-making seriously.*

Evidence-based policy-making is a new governmental religion. Taken seriously, it implies no more than that before policy-makers purport to act on the world they should at least attempt to find out what is going on in it and consider, in the light of available empirical data, how their proposed interventions might impact on the current situation. Boiled down to its essentials, this looks like no more or less than a basic criterion of rationality in policy-making.

Discussions about the research base of the forensic sciences quite naturally tend to focus on the importance of basic *scientific* research. I want to add *social science* (inc socio-legal) research to the wish-list. Forensic science, roughly speaking, is the application of scientific knowledge and techniques to facilitate the administration of (criminal) justice. It should follow that the social processes and institutional contexts in which this work of translation is carried out ought in themselves to be objects of serious empirical investigation and evaluation, as part of a comprehensive programme of evidence-based policy-making.

Yet we actually know very little about these processes. Isn't it time this research was done?

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