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## The Law Commission's proposal on expert opinion evidence: an onerous demand upon judges

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### Summary

In April 2009, prompted by recent miscarriages involving expert witnesses, the Law Commission published Consultation Paper 190: 'The Admissibility of Expert Evidence in Criminal Proceedings in England and Wales: A New Approach to the Determination of Evidentiary Reliability'. The consultation paper recommends that only reliable expert opinion evidence be admitted into court. Reliability is assessed, by trial judges, by recourse to specific criteria identified by the Commission. This article suggests that whilst these criteria are clearly articulated applying them to actual forensic disciplines is fraught with difficulty. If the criteria are interpreted too strictly exclusion of forensic testimony may become too widespread. If interpreted too liberally, the criteria will provide inadequate safeguards against admission of erroneous evidence. The criteria based approach, towards admission, is, subsequently, rejected. It is suggested, instead, that forensic science should be evaluated outside the courtroom by carefully constituted working parties.

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## Introduction

In April 2009, the Law Commission published Consultation Paper 190, 'The Admissibility of Expert Evidence in Criminal Proceedings in England and Wales: A New Approach to the Determination of Evidentiary Reliability'. The Consultation was elicited by recent, well publicised, miscarriages of justice involving the admission of expert evidence. The Commission was concerned that the identified miscarriages may be 'the tip of a larger iceberg' (Law Com No 190: 2.26) and there was a "pressing danger" of wrongful convictions and acquittals (Law Com No 190: 2.12). The Commission propose a new statutory provision that expert opinion evidence is admissible only if the court is satisfied that it is sufficiently reliable to be admitted (Law Com No 190: 2.32). The need for ordinary reliability, in relation to expert testimony, is not new and was confirmed as a prerequisite to admission in *Luttrell* [2004] EWCA Crim 1344 at [37-38]. The Commission acknowledges that admission currently requires ordinary reliability (Law Com No 190: 3.1; 3.3; 3.12; 4.4) and that currently 'expert evidence of insufficient reliability should not be admitted' (Law Com No 190: 4.1).

The distinctive feature of the Commission's proposal lay in their clear articulation as to the methodology required to establish reliability. First, reliable evidence is predicated on sound principles, techniques and assumptions. Second, those principles, techniques and assumptions have been properly applied to the case. Third, the evidence is supported by those principles, techniques and assumptions as applied to the case. The party wishing to adduce the evidence must show that it is sufficiently reliable to be admitted (Law Com No 190: 6.10). Further, the Commission requires courts, when assessing reliability, to refer to specific statutory guidelines (Law Com No 190: 1.10). The proposed guidelines are identified in Part 6 of the Commission's consultation and, to reduce repetition, shall be identified and assessed later.

Again, the difference between the common law and the Commission's proposal can be exaggerated. Courts have previously assessed reliability by recourse to criteria: *Gilfoyle* [2001] 2 Cr. App. R. 5 at [25]. In *Luttrell* [2004] EWCA Crim 1344 at [34] it was confirmed that methodology may be assessed. The Commission confirm some judges are already making criteria style determinations (Law Com No 190: 4.85) citing *Anstee* [2006] EWCA Crim 905 and *Oldham Metropolitan Borough Council v GC* [2007] EWHC 136 (Fam). The Commission's exact point of demarcation, from the common law, may be stated to be three fold. First, there is one set of guidelines, for assessing methodology. Second, recourse to these guidelines is mandatory, not discretionary. Finally, admission of expert testimony, currently, is case specific and appealable only if *Wednesbury* unreasonable (Law Com No 190: 4-17-4.19). The Commission's most marked change in direction is to suggest that admissibility transcends the facts of the case and is the application of a rule of law, rather than, a judicial discretion (Law Com No 190: 4.22). Rights of appeal are thus strengthened under this proposal.

The antecedents to the Commission's proposal will now be identified and discussed.

## Antecedents

The Commission correctly identify their proposal as the progeny of *Daubert Pharmaceuticals* 509 US 579 (1993). The Commission, however, unlike *Daubert*, propose two sets of guidelines. One set of guidelines relate to scientific, or purportedly scientific, evidence and the second to experience based testimony. This is an improvement upon *Daubert*. This article will consider only the former set of guidelines.

Given the Commission's proposal is the offspring of *Daubert* 509 US 579 (1993), rather than, a clone it must be conceded that a critique of *Daubert* is not, necessarily, equivalent to a critique of the Commission's proposals. Nevertheless, the Commission define their approach as 'a *Daubert*-type test' (Law Com No 190: 4.3) and a '*Daubert*-style reliability test' (Law Com No 190: 5.2). A cursory reading of paragraphs 4.14-4.85 reveals twenty-seven references to *Daubert* in the body of the text. It is suggested that brief consideration of *Daubert* is germane to an analysis of the Commission's proposals.

*Daubert* asserts that science achieves reliability by generating hypotheses and testing them to see if they can be falsified (at 593). In *Daubert* Justice Blackmun attributed this theory of falsification to the writings of two philosophers namely Karl Popper and Carl Hempel: (at 593). The Commission acknowledges that *Daubert* has been criticised on the 'largely theoretical and...unfounded' (Law Com No 190: 4.52) ground that it fails to accurately reflect the debate on falsification. Even within *Daubert* the concept of falsification did not escape censure. Chief Justice Rehnquist, in his dissenting judgment, noted: 'I am at a loss to know what is meant when it is said that the scientific status of a theory depends on its "falsifiability"' (at 600). The criticism extends beyond unclear semantics however. The very philosophy espoused in *Daubert* is confused. Karl Popper (See Popper 2002) argued that science is never proven correct but is only falsified. In juxtaposition, Carl Hempel (See Hempel 1965) argued that science can be confirmed not just disproven. The two philosophers were not ready bed-mates.

Professor Haack succinctly notes of *Daubert*:

The justices were apparently unaware that Popper holds that no scientific claim or theory is ever shown to be true, reliable, or probable, but at best "corroborated"...If Popper were right, no scientific claim would be well warranted; in fact, it is hard to think of a philosophy of science less congenial than Popper's to the reliability approach...And if the reference to Popper is a faux pas, running Popper together with Hempel...is a faux pas de deux' (Haack 2007, p251)

The debate is, however, far wider than simply a debate on falsification per se. The debate concerns the definition of science. The Commission is astute to the debate concerning the definition and refers to both 'Scientific method' (Law Com No 190: 1.18; 4.57) and scientific 'methods' (Law Com No 190: 4.53). The terms are not synonymous. By focussing upon a theoretical definition of science the Commission leaves itself open to criticism from philosophers of science. If the Commission wish to avoid theoretical debates theoretical models should not be posited. This criticism cannot simply be discarded as 'theoretical'. *Daubert*'s very rationale is that judges may assess evidence across disciplines germane and foreign to them. The judges' erroneous handling of philosophy provides evidence that casts doubt upon this assertion.

Equally, criticism pertaining to 'falsification' cannot simply be dismissed as 'unfounded' in the absence of compelling evidence. The only evidence cited by the Commission, in support of

'falsification', is a quotation that scientists 'at least pay lip-service to...advances by disproof' (Law Com No 190: 4.58) quoting Professor Dawkins (See Dawkins 2006, p 31). Lip service is 'approval of or support for (something) insincerely or without taking any significant action.' (Oxford Dictionary of English 2<sup>nd</sup> Edition 2005 1020) The quotation does not support falsification in the real world, it undermines it. By adopting Daubert's theoretical approach the Commission leaves the law open to jurisprudential criticism. It is suggested there is no need to postulate some concept of 'science' in order to determine admissibility of forensic disciplines. The theoretical fight is simply a fight that need not enter the courts.

It is, however, suggested that the largest weakness, in the Commission's proposal, lay in practical implementation. The practicalities will now be considered.

## The clarity of the guidelines

The Commission's proposal, if enacted, would require courts to consider criteria when assessing the reliability of scientific, or purportedly scientific, testimony. The Commission argue that guidelines will furnish the trial judge with a 'proper, structured basis' for assessing reliability (Law Com No 190: 4.14). Currently, 'there is little if any guidance for trial judges' (Law Com No 190: 2.30) and no consistent guidance on how reliability is to be assessed (Law Com No 190: 3.4). The Commission cites the American College of Trial Lawyers that there should be "a single conceptual framework" for assessing scientific expert testimony (Law Com No 190: 4.39).

The initial observation is that the Commission does not provide this 'single framework'. Judges are required to consider 'any other factors considered to be relevant' (Law Com No 190: 6.26). Trial judges will not only have to consider the Commission's guidelines but also give thought to an unidentified number of alternative admission conditions. If capable of this latter, more challenging, feat the true usefulness of the initial guidelines is debatable. The Commission concludes, 'It must surely be better for trial judges to have clear, workable guidelines at their disposal rather than no guidelines at all' (Law Com No 190: 4.84). It is suggested that it is not the clarity of the guidelines, per se, that matters but, rather, the ease of applying guidelines to specific scientific disciplines. It shall be argued, shortly, that the Commission's guidelines are far from clear in terms of implementation. Further, just because guidelines are preferable to an absence of guidelines that does not justify reform of the law of evidence. It must be proven that reform is the most appropriate course of action. It will, in due course, be suggested that procedural reform may prove more fruitful.

This article will now assess generic difficulties associated with assessing methodology before going on to briefly consider the Commission's identified grounds for assessing reliability.

## Assessing methodology

The US experience shows the difficulty of assessing methodology. *Joiner* 522 US 136, 118 S.Ct. 512 is illustrative. In this case an electrician was trying to prove that the cancer, from which he suffered, had been caused by an electric company. One of the issues, which the court faced, is the extent to which animal studies can be used to establish causation in humans.

In *Joiner* Justice Breyer noted *Daubert* required

... judges to make subtle and sophisticated determinations about scientific methodology and its relation to the conclusions an expert witness seeks to offer... Yet... judges... do not have the scientific training that can facilitate the making of such decisions (147-148)

Nevertheless, Justice Breyer considered *Daubert* manageable, especially if courts appointed experts to help them (149-150). Justice Stevens, partly dissenting, did not share such optimism:

Joiner's experts relied on...at least thirteen different researchers...only six of them were discussed in the District Court Opinion. Whether a fair appraisal of either the methodology or the conclusions of Joiner's experts can be made on the basis of such an incomplete record is a question that I do not feel prepared to answer(151)

Neglecting over fifty per cent of the evidence does seem to cast doubt on the court's ability to analyse evidence. There was a further error with regard to methodology. The defence had four expert reports that, individually, did not prove causation but, collectively, the defence asserted, did establish causation (145-146). Justice Stevens noted, 'The District Court, however, examined the studies one by one and concluded that none was sufficient to show a link' (153). The judges appear confused on the approach being taken to the evidence.

The difficulty facing trial judges is also vividly shown by this case. The judges were called upon to determine the weight to attach to 'animal studies' when assessing causation in humans. Such deliberation first requires an understanding of the physiological differences between the animal and humans. The judges then have to assess whether the mouse studies were well conducted and, if so, whether they were applied correctly to humans? A determination is then needed as to whether human studies negate the reliability of these animal studies. To achieve that end disparate sources of evidence need assessing individually, and collectively. This is no mean intellectual feat for a scientist. It appears decidedly onerous for a trial judge, perhaps with little scientific education. Given that trial judges are also constrained by The Criminal Procedure Rules overriding objective (CPR 1.1) of efficiency and economy, one cannot but feel sympathy for the trial judge.

One may also have sympathy with defendants. It is evident that different judges will reach different conclusions in relation to the same discipline. When admission was focussed purely on application of the discipline, to the individual case, such inconsistency in admission would not be galling. Admission in one case never justifies admission in another. Under the Commission's proposal a judge, in one court, may adjudge a discipline as objectively valid, independent of the case. The judge in the next court may find the discipline objectively invalid and not proceed to even consider the factual context of the trial. The decision is not context related and so difference becomes unpalatable.

The Commission notes the problem, of assessing methodology, is particularly worrying 'if there is no available expert in the same field...to provide an effective criticism' (Law Com No 190: 2.7). This assumes, perhaps correctly, that a scientist, in a related discipline, could not provide effective criticism. If this is so, why does the Commission conclude that judges are competent to assess every scientific discipline? The Commission notes some disciplines are difficult to comprehend as 'the field requires a preliminary understanding of advanced mathematics' (Law Com No 190: 2.3). Forensic disciplines draw upon mathematics, physics, biology, chemistry, psychology, computer science and medicine; to name but a few fields. No one scientific expert will attempt to 'grasp' each of these disciplines. Experts specialise even within the field of medicine. In *Cannings* [2004] EWCA Crim 1 expert evidence was received from a consultant pathologist, consultant paediatric and perinatal pathologist, paediatric and perinatal epidemiologist, paediatric gastroenterologist, clinical physiologist, consultant cardiologist, immunologist and microbiologist.

The judge, with a cursory training programme, is considered competent to assess the totality of these disciplines and many more besides. Equally, judges also have to keep apprised of

the law. The judges facing this challenge are not appeal judges; they are trial judges faced with considerable time constraints.

Judicial ‘gatekeeping’ is premised on the belief that judges possess sufficient skill to assess methodology. The Commission cites Gatowski’s research, into judicial competence, and concludes ‘US judges...appear to be ill-equipped to perform the task assigned to them, through lack of education or training (or both)’ (Law Com No 190: 4.75 citing Gatowski 2001). The Commission correctly notes that *Daubert* is posited on a ‘false assumption’ of the judiciary’s ability to perform it (Law Com No 190: 4.76). The Commission then concludes that *Daubert* is advantageous as Gatowski’s research suggests judges become more sophisticated with experience (Law Com No 190: 4.81). Further, the difficulties ‘have been exaggerated’ as competent judges may be a model to those overwhelmed (Law Com No 190: 4.82). It is true, that the ‘professional’ serve as a model to the less professional; and equally true that competence may increase over time. The brute fact, however, is that Gatowski’s empirical results showed most judges could not implement *Daubert*.

Throughout the consultation paper, as we shall see later, the Commission emphasises the need for empirical data to be considered. When faced by data, however, greater emphasis is placed on the ‘explanatory interpretation’ than the data itself. If this approach is followed by the judiciary then most data may be ‘explained away’ and the research becomes dilute to point of extinction (to mix metaphors). It is correct that the poor experience in the United States does not amount to evidence that the process will fail in England and Wales. The evidence cannot, however, simply be dismissed; especially as law is a postgraduate discipline in the United States and judges may have a more varied educational background. The Commission provides no other evidence to suggest that gatekeeping will be performed well. The consultation seems to require evidence based decision making and then reaches a conclusion in opposition to the evidence.

### Assessing methodology: professional esteem, testing and the margin of error

The Commission places emphasis on acceptance of methodology. The expert's qualifications, experience and publications and their standing in the scientific community are considered when assessing methodology. The scientific validity of opposing views, and the qualifications and professional standing of those scientists holding such views are also assessed (Law Com No 190: 6.26). Esteem, however, does not suffice for admissibility. The Commission provide that, when assessing reliability, judges must consider whether the principles, techniques and assumptions have been properly tested and, if so, the extent to which the results demonstrate they are sound. Equally, judges must assess the margin of error associated with the application of, and conclusions drawn from, the discipline (Law Com No 190: 6.26). The party wishing to adduce evidence would ‘need to refer to relevant, properly conducted empirical research’ (Law Com No 190: 6.20). In turn, proper testing requires objectivity, appropriate comparators, for example control groups, and measures to protect against contamination (Law Com No 190: 6.28). There should be no unwarranted assumption of causation from temporal proximity (Law Com No 190: 6.29). Further, the database must be sufficient, in quantity and quality, to justify the inference from it (Law Com No 190: 6.29). The difficulty with this requirement is that much forensic science is not tested in any watertight sense of the term. *Holdsworth* [2008] EWCA Crim 971 concerned a case where a child died, according to defence submissions, from an epileptic seizure. Professor Guerrini testified that patients would not be allowed to fit for more than five minutes, without medical intervention, so there are no medical studies replicating the victim’s situation: *Holdsworth* [2008] EWCA Crim 971 at [55].

*Harris* [2006] 1 Cr App R 5 at [76] noted that science could not calculate degrees of force, required to injure children, because 'it is not possible to carry out experiments on living children.' In that case Dr Thibault, a biomechanical engineer, testifying on the pathology of force, commented it was 'arbitrary, unscientific and meaningless' at [92]. Further, the science concerning 'shaken baby syndrome' was, according to Dr Geddes, only a 'hypothesis' at [58]. The Commission is alert to this danger, noting paediatric pathology is 'predicated on empirical research comprising only a small, poor-quality database' (Law Com No 190: 2.24). Further,

'the evidence for shaken baby syndrome appears analogous to an inverted pyramid, with a very small database (most of it poor quality original research, retrospective in nature, and without appropriate control groups) spreading to a broad body of somewhat divergent opinions (Law Com No 190: 2.24 citing M Donohoe 2003).

One difficulty is determining what 'weight' to attach to the Commission's condition of testing. If interpreted too strictly it is difficult to see how some, perhaps many, branches of pathology remain admissible. Objective testing, in certain branches of pathology, may be an aspiration not a possibility. Pathology, in some contexts, may also be persuaded by the very temporal proximity that the Commission sought to exclude. The Commission provides four examples of flawed expert evidence (Law Com No 190: 2.25) and three of these cases concern pathology: *Harris* [2006] 1 Cr App R 5 (Law Com No 190: 2.22); *Cannings* [2004] EWCA Crim 1 (Law Com No 190: 2.20) and *Clark (Sally) (No 2)* [2003] EWCA Crim 1020 (Law Com No 190: 2.16). It is a moot point whether judges will, in due course, agree with the Commission's inference that Professors of Pathology are the bastions of 'junk science'. Given the relative paucity of successful appeals, against pathology, such a view seems unlikely. Forensic pathologists are amongst the highest qualified and most esteemed experts in the field of forensics. It is open for courts to emphasise this aspect when determining admissibility. Public policy would seem to dictate a tolerant approach towards admission of pathology. The concern is that the judge simply decides upon admission and then 'interprets' and 'weighs' the criterion in such a manner as to justify admission. The criterion do not become a safeguard against admission but, rather, simply become an intellectual exercise a judge must perform to justify the decision they have made.

The problem is more widespread than pathology. The Commission identifies Jonakait's assertion that

[I]ittle is...known about the true error rates for almost all forensic science techniques. The few disclosed error rates, however, are shockingly high. Most of forensic science operates outside of the peer review systems, and forensic science is seldom published. While forensic science techniques are accepted in forensic science, many are not accepted by a broader scientific community. Furthermore, the techniques accepted in forensic science are not used in such a way that would reveal their methodological flaws (Law Com No 190: 2.26 citing R N Jonakait (1994) at 2117).

The Commission notes assertions that 'much...forensic scientific evidence...has not been properly validated, which suggests that there is at least a significant risk that some such evidence is insufficiently reliable to be admitted' (Law Com No 190: 2.26). Despite this, the Commission suggests their approach 'would not necessarily lead to a sea change in...criminal proceedings...much (but not all) expert evidence which is currently admitted would continue to be admitted' (Law Com No 190: 6.12). To support their assertions the Commission cites research suggesting rejection, post-*Daubert*, is the exception rather than the rule (Law Com No 190: 6.12 citing Advisory Committee on the Federal Rules of Evidence).

Erica Beecher-Monas, whilst favouring the condition-based approach, provides evidence that, if the rules are strictly interpreted, exclusion may be widespread (See Beecher-Monas 2006). Erica Beecher-Monas notes ‘

[m]any time-honored methods of criminal identification, such as hair analysis, voice spectrography, and bitemark identification...have turned out to have no better foundations than ancient divination rituals (See Beecher-Monas 2006 p 1).

Beecher Monas suggests fingerprints have ‘crept into court with virtually no demonstration of their scientific bases’ (See Beecher Monas 2006 p 94). Fingerprints are posited on the underlying assumption that all fingers are different even though ‘there have been no systematic controlled studies to prove it’ (See Beecher-Monas 2006 p 94). New Scientist notes that although the FBI has a database of 50,000 prints it is difficult to discern whether every finger is different or simply the print is different (See New Scientist 31<sup>st</sup> January 2004 and 19<sup>th</sup> September 2005). Smudging, during inking, may undermine much evidence in support of fingerprinting. Certain fingers had prints which, when inked, produced fingerprints insufficiently similar to be a match. This procedure has been cited as being ‘worthless for documenting the individuality of fingerprints.’ (See D Stoney (2001) at 383). Beecher Monas concludes about fingerprints, that the theory is questionable, the statistical modelling flawed and the methodology subjective (See Beecher Monas 2006 107).

The ‘theory of difference’, suggested by fingerprints, differs from DNA where the theory is that there is much repetition in nature and so numerous distinct ‘areas’ need comparing. In 1988, ACPO commissioned research confirming there was no scientific basis for retaining the numerical standard on fingerprints. In 1995, it was acknowledged that fingerprints were not ‘an exact science’ and so the Fingerprint Evidence Project Board rejected arbitrary numerical thresholds. In effect, the inexactness removed the need for a certain quantity of defining features. In June 2001, the 16 point system was replaced with a non-numerical system: Lord Rooker Hansard HL (series 5) vol. 625 col 2699 15 February 2002.

Over time improved technology may undermine such arguments of imprecise testing. Technology may also, however, undermine the supporting theory. One rationale has been that fingerprints increase friction and this helps create the unique print. Recent research suggests fingerprints actually decrease friction (See New Scientist 2009). Whether fingerprints can be retained, under the Commission’s proposals, is purely a question of how the criterion is interpreted. The criteria themselves may be clear; the manner of implementation is far from clear.

Concerns about the correctness of fingerprints become compounded when applied to earprints. The Commission conclude that earprints would be admissible if reliable (Law Com No 190: 6.33). The case of *Dallagher* [2003] 1 Cr App R 12, however, which concerned earprints, was the final case where the Commission suggested science had erred (Law Com No 190: 2.14).

A database of three hundred earprints exists: *Dallagher* at [9]. Given that the world's population is approximately 6,793,178,687 it is surely tenuous to conclude, from this small sample, that all ears are different. In *Dallagher* the prosecution experts Professor Vanezis, and Mr Van Der Lugt, considered the assumption justified although only ‘an assumption based on limited experience’ at [14]. For the defence, Dr Champod, of the Forensic Science Service, conceded that all ears were the same, but disputed earprints as a safe basis for convicting at [12]. Defence expert Professor Van Koppen was critical even of the assumption that all ears are different given the small database at [13]. Asserting the database must be sufficient, in quantity and quality, is the easy part of the endeavour. Applying this test to



earprints is harder. There was disagreement amongst internationally esteemed experts. It is debatable to what extent a trial judge will be able to resolve these issues. The difficulty will, however, become compounded when considering the ramifications for accepting, or rejecting, research in other disciplines.

Dr Geddes created, and published, an internationally considered 'unified hypothesis' on infant deaths from approximately fifty studies: *Harris* [2006] 1 Cr App R 5 at [66]. Lord Howe suggests a psychological theory that mothers harm children to gain attention, called Munchausen's by Proxy, became accepted on a handful of studies: Hansard, HL, 5 February 2003, col. 316. So, what size of database suffices? Would a database of fifty earprints justify the theory that every ear is different? What about a handful of different earprints? Accepting one database, in one discipline, does not transpose to accepting a similarly sized database in another discipline. Equally, however, comparisons cannot be entirely dismissed. Reasoning has to justify permitting one sized database, for one discipline, and a different sized database for another discipline. The reasoning that would justify such conclusions has not been identified, or considered, by the Commission. The trial judge faces that task alone.

The quantity issue is, however, not as difficult as the quality issue. We have seen that the same finger has given rise to distinct fingerprints. Given the malleability of the earlobe, is this not an even more distinct problem for earprints? In *Dallagher* [2003] 1 Cr. App. R. 12 at [11] defence expert Professor Van Koppen concluded 'The research that is necessary to say anything on the validity of ear identification has not been conducted.' The problem of databases extends further. In *Stockwell* [1993] 97 Cr. App. R. 260 at (264) it was noted there was no database for facial mapping. *O'Doherty* [2003] 1 Cr. App. R. 5 at [11] accepted there was no population statistics on which auditory analysis could be analysed. Psychology cannot provide databases which are wholly objective as many conditions may require subjective assessments.

Even a cursory examination of forensic study suggests that, if strictly interpreted, question marks are cast on the admissibility of some pathology, fingerprints, earprints, acoustic analysis, facial mapping and psychology. The Commission have indicated that, in reality, much testimony would remain admissible. In terms of public policy this is undoubtedly correct. The conclusion must only be that the Commission's conditions, although onerous in wording, will be dilute in application. This then begs the question whether their proposal will go far enough in regulating forensic testimony.

The Commission asserts that corroboration through testing is the best basis where evidence can be tested (Law Com No 190: 4.56). This is correct. The issue is that, by the Commission's own evidence, much forensic testimony is not tested in ways which satisfy their requirement of 'objectivity' (Law Com No 190: 6.28). Testing is best, but it may not be feasible. Admission needs assessing in the absence of objective testing. The Commission, too often, seem to hark back to an ideal of science not the actual.

## Literature and peer review

When assessing reliability the Commission requires consideration as to whether there is a body of specialised literature. Consideration must also be given as to whether the principles, techniques and assumptions have been considered by scientists in peer reviewed publications. If so, the extent to which they are regarded as sound in the scientific community must be assessed. Finally, it must be assessed whether the expert has failed to act in accordance with their overriding duty of impartiality' (Law Com No 190: 6.26).

Moreno argues, under *Daubert*, 'peer review and publication has become a virtually meaningless...surrogate for real review with the mere fact of...peer reviewed publication

...serving as a validity enhancer' (See Moreno 2003 p 98). Peer review may also become self-serving. Beecher-Monas notes: 'forensic odontologists...have their own accreditation...and a journal in which they publish articles...However, they have little theoretical or empirical support...It is an entirely subjective procedure; there are no controls and there is no blind testing of these experts' (See Beecher Monas 2006 at p 97).

The Commission are astute to such concerns and note that much knowledge becomes generally accepted without careful examination of the underlying methodology (Law Com No 190: 4.35). For this reason the Commission requires both quantitative and qualitative peer review. This is the correct approach. It is also, again, an onerous approach.

In an artificially simple paediatric pathology case, where solely the degree of force is in issue, international articles on pathology, physiology and biomechanics would need locating, understanding and assessing. The judge may have to weigh one discipline against another. There is no evidence cited, in the Commission's paper, to suggest trial judges will perform the task well.

In *Gilfoyle* [2001] 2 Cr. App. R. 57 the court erroneously considered *Frye* 293 F 1013 to be the leading case, on admission of expert testimony, within the United States. This was, presumably, attributable to failure to locate *Daubert* 509 US 579 (1993). This suggests an inability to correctly locate international sources, even within the field of law. In *Harris* [2006] 1 Cr. App. R. 5 at [58] Professor Geddes, when notified that her theoretical paper was being used frequently by defences, testified 'I would be very unhappy to think that cases were being thrown out on the basis that my theory was fact...we do use the word "hypothesis" throughout.' This suggests lawyers are unable to accurately assess evidence.

A further difficulty is that there may be a time delay with regard to peer review. Professor Geddes commenced research into almost fifty cases in 2000 yet her theory was not rejected until 2006: *Harris* [2006] 1 Cr. App. R. 5 at [58] & [74]. This rectification may have been prompt compared to the delay in discrediting some science. Science cannot be divorced from funding and so incorrect theories may persist for considerable time.

Assessing articles is problematic. How wide do we cast our net? Do we, for example, judge fingerprints against the community of fingerprint analysts or the wider scientific community? Do we cast our net nationally or internationally? It must be conceded that a literature search does not, necessarily, confirm general acceptance. Do the judges have to read these articles themselves, for nuances of interpretation, or can they accept a summary? If a summary is permissible who bears responsibility for its creation? The Commission is alert to these problems but little help is given as to a remedy.

## Judicial notice may permit circumvention of the assessment of expert testimony

There are exceptions to the Commission's edict that recourse to conditions of admissibility is mandatory. Some evidence would not require assessment as patently unreliable (Law Com No 190: 6.17). The Commission also notes that some science is so well established as to be accepted by judicial notice (Law Com No 190: 3.12(2); 6.17).

Judicial notice is an economic necessity for the Commission's proposal. If notice were not taken, of certain forensic disciplines, the cost of trials would become inflated. It is, perhaps, uncontroversial to suggest that fingerprints will become judicially accepted. The Commission's conclusion that admission will, largely, continue as before suggests this conclusion (Law Com No 190: 6.12). There are, however, as we have seen, concerns with fingerprints. The Commission's approach will, in reality, do little, if anything, to improve

quality within fingerprinting. There is a danger that disciplines will be readily accepted, and given judicial notice, on public policy grounds. Trial judges will then simply concern themselves with how the discipline applies in the instant case. There is a danger that little will effectively change.

## Criminal Procedure: A preferable response

The Commission notes that reform will have to come from Parliament (Law Com No 190: 3.17). The need for Parliamentary reform is, perhaps, confirmed by assertions in *Harris* [2005] EWCA Crim 1980 at [270] that there 'is no single test which can provide a threshold for admissibility in all cases.' The appeal courts have routinely chosen not to adopt the *Daubert* style test based approach towards admission. Whilst the Commission considers that arguments against *Daubert* are 'unpersuasive' (Law Com No 190: 5.2) there is little in the paper to persuade that their proposal is required or justified. The Commission's assertion that other alternatives would not work, (Law Com No 190: 5.2) as an argument in support of a *Daubert* approach, is unconvincing.

The Commission also partly justify their proposal as scientists favour the *Daubert* approach (Law Com No 190: 4.57). There is no evidence, outside of the US, produced to support this assertion. The Commission then assert that scientists' views should be given 'considerable weight when formulating a test' (Law Com No 190: 4.59). Given that the evidence forms part of judicial proceedings it is not immediately discernible why this should be true. If the scientist's opinions were so compelling why could a trial judge override them in the Commission's proposal?

*Daubert* is part epistemological, referring to testability and error rates, and part societal requiring peer review and acceptance. The Commission's proposals implicitly retain this distinction. The Commission's report does not, however, provide watertight arguments at either a theoretical or practical level. The very task of implementing generic tests, to non-generic disciplines, seems unnecessarily complex. To introduce epistemology, formally, when there is no need appears masochistic. The Commission notes that *Daubert* is criticised and supported in equal measure (Law Com No 190: 4.50). Dwyer observes that the volume of literature, on *Daubert*, is such that 'one could probably dedicate a career to *Daubert*' (Dwyer, 2008 p 342). Given such extensive analysis to introduce a new law, based upon fifty per cent approval does not seem justified. There has, arguably, been too much legislation in recent years and reform on such unsubstantiated grounds should be avoided. The Commission notes their consultation extends only to evidence, not practice (Law Com No 190: 1.12) and, taken in isolation, their proposals would not provide a panacea (Law Com No 190: 1.13). The Commission acknowledge that their recommendation will be most effective if complemented by 'extraneous measures' (Law Com No 190: 1.14). These extraneous measures include robust accreditation of experts; a disclosure process which allows experts to be assessed prior to trial and enhanced training for judges and lawyers (Law Com No 190: 1.15).

It is suggested that modifications to criminal procedure is the preferable way forward. The approach of the Forensic Science Regulator has great potential. The Regulator has created specialist working groups on DNA, Quality Standards, Digital Forensics, End User, Pathology and Practitioner Standards. Working parties may benefit from cross discipline membership. These working parties could assess admissibility but, more importantly, produce codes of good practice. This means attention is focussed not simply upon whether the discipline is admitted into court but, more importantly, how the evidence may best serve the trial and be best presented to the jury. The exact manner of establishing these working parties is, naturally, outside the scope of this paper.

Working parties, in assessing admission, need not reference some objective 'scientific method' or 'scientific methods' as is required under the Commission's proposal. The subsequent reports would not set themselves up as some theoretical construct and, as such, become partially insulated from theoretical criticism. Conversely, though, philosophers of science may be included on the panel to bring some clarity to the assessment of methodology in practical terms. Hence, rather than having a theoretical model which purports to be practical, the working party could produce a wholly practical document, which is informed by theory. This seems a more natural way in which to approach the problem.

## Conclusion

The Commission assert that only reliable evidence should be admissible and, in turn, reliability is assessed by recourse to specified criteria. The Commission's criteria are thoughtfully selected and clearly written. The problem with this approach, however, is two fold. First, the Commission introduces a theoretical construct of science when this is not required. Second, implementing these criteria is extremely problematic and leaves the trial judges with the onerous task of definition and application to the particular discipline. Although the Commission requires assessment of evidence it is suggested that they provide inadequate evidence, within their consultation paper, to support their proposals. The weight of the evidence, within their report, points to the fact that implementation may only be, at best, partially effective.

The Commission themselves suggest that changes to practice, and procedure, may be a necessary partner to their proposal. It is suggested that, in the first instance, modifications should be made to practice alone. Working parties should be created to consider both admissibility and codes of good practice. The effectiveness of this approach should be tested before having recourse to yet more legislation.

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