

An English *Daubert*? Law, Forensic Science and Epistemic Deference

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Abstract

A test for the admissibility of expert evidence, partly derived from *Daubert*, has recently been introduced into English criminal law by the unusual mechanism of a Practice Direction.

This article compares the *Daubert* trilogy and the English Practice Direction as responses to the problem of epistemic deference by juries to experts. Juries are often justified in deferring to experts as to the *relevance* of the underlying evidence examined by the expert, including what inferences can be drawn from it. There is a concern, however, that juries may also defer to experts' claims about the *weight* of their own evidence: how strongly or confidently those inferences can be stated. Overly deferential jurors may place excessive weight on forensic science evidence that rests on shaky foundations. The new English admissibility regime (drawing on recommendations by the Law Commission) appears better tailored than *Daubert* to address this issue about the strength of inferences presented by expert witnesses. As a result, however, it places considerable demands in judges, advocates and expert witnesses, and how successful it will be in practice remains to be seen.

Introduction

Until very recently, England and Wales had nothing like a *Daubert* test for admissibility of expert evidence. Civil judges, who normally decide cases without juries, play an active 'gatekeeping' role but it is focused explicitly on case-management and cost reduction – which are arguably the real aims of *Daubert* (Jacob 2009; Faigman 2013). In the criminal courts there have been few reported decisions to exclude any kind of expert evidence except that of psychiatrists or psychologists. Effective 7 October 2014, however, an admissibility test recognizably derived from *Daubert* has been introduced into the criminal courts by the somewhat unusual mechanism (for such a significant change) of a Practice Direction issued by the Lord Chief Justice (Thomas 2014a).

As Lord Thomas has acknowledged, the Practice Direction amounts to “a novel way of implementing an excellent report” by the Law Commission, an advisory body whose proposals for a new statutory admissibility test were rejected by the government (Thomas 2014b, 6). The Commission's report, in turn, was a response to the recommendation of a parliamentary committee that an admissibility test based on *Daubert* was needed to reduce the risks posed by unreliable forensic science or medical evidence (House of Commons 2005). Those risks had been highlighted by a series of notorious miscarriages of justice, including major cases of terrorism in the

1970s (the “Guildford Four”, “Birmingham Six”, and “Maguire Seven”). Among more recent cases the committee was particularly concerned at the wrongful convictions of Sally Clark and Angela Cannings for murdering their young children (2005, para. 130). Both prosecutions relied heavily on the evidence of the same pediatrician, who exemplified the “charisma,” which the committee feared unduly influenced juries (2005, para. 142).

The Law Commission recommended a statutory test that expert evidence must be “sufficiently reliable to be admitted.” The test was designed to be flexible, so that what degree of reliability was “sufficient” would vary with the “strength” of the expert evidence – i.e. the degree of probative value claimed for it by its proponent – and the burden and standard of proof that the proponent had to meet. Two lists of factors that courts would take into account in determining whether the evidence was sufficiently reliable were set out in the Law Commission’s Draft Bill.

The Practice Direction advises judges that, as a matter of common law, expert evidence must have “a sufficiently reliable scientific basis...to be admitted” (Thomas 2014a, para. 33A.4, quoting *R v Dlugosz* 2013, para. 11). To help judges determine whether this test is satisfied, the Practice Direction sets out guidelines based on the factors proposed by the Law Commission. Despite the use of the word “scientific”, any common-law power must also apply to non-scientific expert evidence, as did the Law Commission’s proposals. With regard to scientific evidence, a recent lecture by Lord Thomas indicates that he is mindful of the scientific limitations of forensic science as revealed in the National Academies of Science report (Thomas 2014b; National Research Council 2009). Rather than merely restating the common law, the Practice Direction is intended, according to a recent Court of Appeal judgment, to inaugurate a “new and more rigorous approach on the part of advocates and the court” (*R v H* 2014, para. 44).

How rigorous the new test will be in practice remains to be seen. The success of the Practice Direction will depend partly on whether it can avoid some of the epistemological problems that beset *Daubert*. I shall argue that it can, although to implement it effectively will be a demanding task for judges, advocates, and experts.

The Problem of Deference

A central problem which both *Daubert* and the Practice Direction attempt to tackle is the “danger that juries will abdicate their duty to ascertain and weigh the facts and simply accept the experts’ own opinion as evidence, particularly if the evidence is complex and difficult for a non-specialist to understand and evaluate” (Law Commission 2011, para. 1.9). Juries may, other words, show undue deference to experts.

“Deference” is often contrasted with “education” (Allen and Miller 1993), but education typically involves a large element of deference. The Practice Direction itself is intended to be combined with a measure of “education” – providing juries with “primers” on the uncontroversial aspects of the scientific evidence – but it is clear that their acceptance of this information is expected to be thoroughly deferential (Thomas 2014b, 12-3). For many kinds of expertise, for example forensic pathology, it is impossible for the jury to become “educated”, because applying the relevant expertise to the facts of the case demands refined observational skills that

can only be acquired by long experience and training, as well as access to facilities such as mortuaries (Roberts and Zuckerman 2010, 472-3). The crucial distinction, I suggest, is not between deference and education but between two contrasting *kinds* of deference.

Take Roberts and Zuckerman's example of a pathologist's evidence that "the bruising found on the deceased's neck is indicative of strangulation" (2010, 472). It is true that the jury has no way of assessing independently whether the bruises are indicative of strangulation or not. However, the jury also has to consider the *weight* of that evidence, especially when there is other evidence pointing to a different conclusion. The orthodox common-law view is that the jury can always take its own view of the weight of expert evidence, in light of the whole body of evidence in the case (*R v Reed* 2009, paras. 163-5). And the orthodox view is right, for the simple reason that the weight of the evidence is the weight of the *jury's* reasons, as non-experts, for believing it. So while jurors can be expected to defer to experts as to the *relevance* of their findings – that they are evidence of one thing rather than another – the jury should not defer to the experts' assessment of the weight of their own evidence.

In Roberts and Zuckerman's example, there are clearly factors that the jury can use to assess the weight of the evidence about the bruises. We are told that the pathologist bases his testimony on "a medical literature search and his personal involvement in scores of previous similar cases" (Roberts and Zuckerman 2010, 272). So his evidence may carry more weight than that of a pathologist who (as in one case I recall) has never seen a similar case and bases his evidence on a literature search which has turned up only seven previous instances of a similar cause of death. In addition, the jury usually has to assess the expert evidence in the context of other evidence that supports or contradicts it. Suppose there is clear evidence from lay witnesses that the deceased was accidentally drowned. What is the correct weighting of the pathologist's evidence against that of the lay witnesses? There seems to be no uniquely correct rational answer to that question. It depends at least in part on how far one is disposed to trust the pathologist and the non-expert witnesses (Scheman 2001).

The ideal of carefully graduated deference reflecting the strength of the jury's reasons for belief contrasts with what Roberts and Zuckerman (2010, 474) call "the juror deference model", according to which "expert evidence presents jurors with a simple choice: either accept what an expert accepts wholesale and at face-value, or reject the expert's evidence – or some part of it – on irrational grounds". As a piece of normative epistemology, the "deference model" is wrong. It neglects the degree to which, both in court and in everyday life, laypeople have rational grounds to trust or distrust various experts and weigh their evidence in a discriminating fashion (Goldman 2001; Anderson 2011). But it may be descriptively accurate as a "realistic account of the reception of expert evidence in English criminal trials" (Roberts and Zuckerman 2010, 474). There is little research that assists in assessing the truth of this claim, but it appears sufficiently plausible to justify treating excessive deference as a form of prejudicial effect, which should be taken into account in determining whether expert evidence should be admitted.

If we take the risk of passive deference seriously and we also want to preserve trial by jury, then we will want a test of admissibility to do two things. It should reduce the risk of passive deference to unreliable expert evidence, but it should also assist juries in arriving at an appropriate level of deference to moderately reliable evidence and a reasoned assessment of its weight. I want to consider how successfully *Daubert* combines those two tasks, and whether the new English approach might do better.

***Daubert* and Deference**

One way to reduce the risk of undue deference on the part of juries is to ensure that expert evidence is not admitted unless there are good reasons to defer to it. That way, if the jury passively and uncritically believes what they are told, they will at least accept something that they have good reasons to believe, even if they do not base their belief on those reasons. According to the "weak internalism" which Michael Pardo plausibly depicts as the implicit epistemology of federal law, the jury would be justified in their beliefs so long as they had "cognitive access" to those reasons and "could cite" them (Pardo 2005, 365).

It may be justifiable to defer to an expert if one has reasons to think that whatever the expert says about matters in a particular domain is likely to be correct, especially if one is not able to assess the reasons the expert has for making a particular statement. As in the case of practical authority, deference to a theoretical authority may be justified on the basis that one is more likely to form a justified belief by adopting the expert's belief than by attempting to figure out the reasons for it oneself (Zagzebski 2012). The rationality of this kind of epistemic deference depends on having good second-order reasons for believing that the expert is likely to be right.

In the *Daubert* case, the Supreme Court focused on second-order reasons of this kind. Whether the theory underlying an expert's opinion is testable and has been tested, whether it has been subjected to peer review and publication, has a known error rate, and is "generally accepted" are all second-order reasons for believing the expert has some good reasons to believe the theory. The two subsequent cases in the *Daubert* trilogy make clear that admissibility decisions may also involve some critical examination of the experts' substantive reasoning. *General Electric v. Joiner* (1997) recognizes that there cannot be a rigid separation between the underlying theory and the cogency of its application to the particular case; and *Kumho Tire* (1999) enjoins judges to consider whether the "intellectual rigor" of the expert's approach is similar to that which would be adopted in a non-forensic context. Nevertheless, particularly compared with the English guidance considered below, *Daubert* is strongly focused on second-order reasons for believing or doubting the opinions of experts.

The merit of the *Daubert* approach is the protection it affords against overly deferential juries. A jury should not be invited to defer to an expert unless the expert has some reasonable claim to epistemic authority. The drawback of *Daubert*, on the other hand, is that exclusionary decisions deny the jury the opportunity of critically assessing the weight of expert testimony.

Unlike the judge's admissibility decision, the jury's assessment of weight is made in the context of the evidence as a whole. Sometimes taking account of the other

evidence can distort adjudication on scientific questions. For example, in the litigation that gave rise to the *Daubert* decision, there were good reasons for separating out the general issue of whether the drug Bendectin caused birth defects from the evidence of the defects suffered by particular plaintiffs or the negligence of the defendants (Sanders 1998). In other situations, however, the value of expert evidence may only be apparent in a wider context. Psychiatric or psychological evidence that lacks a strong scientific foundation may enable a jury to make coherent sense of a defendant's or witness's behavior (Slobogin 2007). Several scientific studies, each inconclusive by itself, may together form a pattern that is best explained by some substance causing a certain disease (Haack 2014).

Both these types of evidence present a risk that juries will be led astray by fallacious reasoning or will passively defer to evidence that has only a weak claim to epistemic authority; but an over-rigorous approach risks injustice and erodes the jury's role. At one point in his *Daubert* opinion, Justice Blackmun cautioned against such an over-rigorous approach and reaffirmed the Court's faith in the adversary system: "Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence" (*Daubert* 1993, 596). A federal appeals court has cited this passage to justify admitting the kind of scientific evidence that draws an "inference to the best explanation" from several studies, none of which would be satisfactory evidence of causation by itself (*Milward v. Acuity Products* 2011). This decision has drawn criticism for creating too great a risk of jury deference to evidence tainted by "adversarial bias" (Bernstein 2013).

The problem of how high to set the bar of admissibility is especially acute with regard to many forms of forensic science. Although far "shakier" scientifically than a viewer of the television show *CSI* might suppose, it is probably safe to assume that at least the more established forms of forensic comparison evidence are not altogether worthless. The problem with this evidence is not that it lacks probative value but that its degree of probative value is (or was at the time of the influential report by the National Academies of Science 2009) unknown (Pardo 2010). US courts have been understandably reluctant to exclude evidence that could, in conjunction with other evidence of guilt, add up to a compelling prosecution case, thereby leaving themselves open to accusations of failing to implement *Daubert*. At its best, however, *Daubert* has curbed the making of unwarranted claims, for example matching shell cases to a specific pistol "to the exclusion of all other firearms in the world" (*US v. Green* 2005, 109). This is also a major objective of the English reforms to which we now turn.

The English Alternative

Rather than excluding weakly-supported evidence, courts may seek to ensure that experts frame their opinions in ways that invite only a limited degree of belief from the jury, where that is all that is justified by the available evidence of the validity of the experts' methods. In recent years, the English judiciary has pursued this approach both through Rules requiring experts to state clearly the limitations of their evidence (see below) and through case law in which the Court of Appeal directs trial judges to control the way in which expert evidence is to be given (*R v Reed* 2009; *R v Atkins* 2010; *R v T* 2010). This approach reduces the risks of unwarranted, passive deference in two ways. First, by making jurors aware from the start that the evidence

is subject to qualification or dispute, it presumably makes jurors less likely to accept it uncritically. Second, if they *do* accept it uncritically (but in a way that reflects faithfully what the expert is saying) they will at least be accepting a conclusion that is not grossly overstated.

A key principle in the Law Commission report was that “[a]ny inference drawn by the expert must be expressed with no greater degree of precision or certainty than can be justified by the material supporting it” (para. 5.66). The proposal that what degree of reliability was “sufficient” should depend upon the “strength” of the evidence would probably lead in many cases to particular inferences being declared inadmissible in the form in which the expert proposed to state them, rather than in an expert’s evidence being excluded in its entirety (Ward 2013).

The Practice Direction does not explicitly adopt the Law Commission’s definition of “sufficiently reliable”, which would have had to be introduced by legislation. Instead judges are left to derive a test from the common law. Although it is not explained in the Practice Direction, a legal basis for excluding inferences that are more strongly expressed than their basis warrants can be found in the principle that expert evidence is admissible by way of an exception to the general rule excluding opinion evidence. To be admissible, the evidence must be founded on a body of knowledge or experience that is outside the knowledge of the jury (*R v Turner* 1975). By interpreting this principle more strictly than English courts usually have hitherto, it can be seen to impose broadly similar requirements to the *Daubert/Kumho* interpretation of Federal Rules of Evidence: Rule 702. The body of knowledge relied upon by the expert must genuinely constitute “knowledge”, and any conclusion purportedly founded on that knowledge must be derived from it by cogent reasoning that can be explained to the court, not the mere “*ipse dixit*” of the expert (*Kumho Tire v. Carmichael* 1999, 1179; *Davie v Edinburgh Corporation* 1953, 57). Any opinion that is expressed more strongly than is warranted by such reasoning therefore lacks a foundation in expert knowledge and is inadmissible.

In curbing unduly confident expressions of opinion the courts can also rely on the provisions of what are now the Criminal Procedure Rules 2014 in relation to the contents of an expert’s written report. Two requirements are especially significant in seeking to assist the jury to make an informed judgment as to the weight of the evidence. When dealing with matters on which there is “a range of opinion”, the report must “(i) summarise the range of opinion, and (ii) give reasons for the expert’s own opinion”; and “if the expert is not able to give an opinion without qualification” – not able, that is, consistently with the expert’s duty to help the court to deal with cases justly by giving an objective opinion (r. 1, r. 33.2) – the report must state the qualification (r. 33.4(f) and (g)). These requirements are coupled with r. 33.6, under which where there are several experts the court can require them to prepare a statement setting out their areas of agreement and disagreement. In *R v Reed* (2009), an important case on DNA evidence, the Court of Appeal stressed the importance of these rules in enabling the judge to consider the reports at a pre-trial hearing and give guidance as to the terms in which oral evidence is to be given (*R v Reed* 2009, paras. 128-33).

In contrast to the conventional adversarial approach endorsed in *Daubert*, these Rules should ensure that any areas of doubt and disagreement about the experts’

evidence are set clearly before the jury from the outset, rather than emerging in cross-examination. From a psychological point of view this could have considerable advantages. Several studies (reviewed by McQuiston-Surrett and Saks 2009) indicate that cross-examination is ineffective in getting jurors to reduce their degree of confidence in expert evidence. Kovera and colleagues (1994) suggest that once jurors have fitted the expert testimony into an overall causal scenario, their view of it may be relatively impervious to change. Where the prosecution and defense are offering different explanations for the scientific evidence, it may be advisable to make this ambiguity clear as early as possible.

What the Practice Direction took directly from the Law Commission's Draft Bill were two lists of factors to be taken into account in deciding whether expert evidence is "sufficiently reliable". One of these is a list of what the Law Commission termed "key (higher-order) examples of reasons why an expert's opinion evidence is *not* sufficiently reliable to be admitted"; the other (placed before it in the Practice Direction) lists "more specific (lower-order) factors" that judges would be directed to consider (Law Commission 2009, para. 5.17). These are matters affecting the weight of the evidence, together with considerations of how adequately those matters have been taken into account or explained. They are likely to be particularly relevant to the question whether an expert's conclusions have been too strongly stated.

In the Practice Direction the Law Commission's "higher-order examples" are rephrased as "potential flaws" that judges should be "astute to identify". The list begins with the *Daubert*-like issue of whether the relevant hypothesis has been sufficiently tested, but also adds a series of further considerations about the expert's assumptions, data, method, and inferences (Thomas 2014a, para. 33A.6).

The Practice Direction's list of factors to be taken into account (based on the Law Commission's "lower-order" factors) is similar to *Daubert* in some respects, but more elaborate. Peer-reviewed publication is given as one example of "the extent to which any material upon which the expert's opinion is based has been reviewed by others with relevant expertise." Where *Daubert* simply asks whether a technique has a known error rate, the Practice Direction asks "whether the opinion properly explains how safe or unsafe the inference" from any findings is, and "whether the opinion takes proper account of ... the degree of precision or margin of uncertainty" of any results on which it relies. In place of "general acceptance," it sets out a more complex criterion: "if there is a range of expert opinion on the matter in question, where in the range the expert's own opinion lies and whether the expert's preference has been properly explained" (Thomas 2014a, para. 33A.5). These and other factors are tailored to support, not a binary decision as to whether the basis of an opinion amounts to scientific or technical "knowledge" or not, but rather a graded assessment of how strong an inference it can support.

Will It Work?

In short, the Practice Direction calls for close scrutiny of the expert's reasoning, data and methods, and thus sets a more demanding task than *Daubert's* list of second-order reasons to believe that the expert has good reasons for the opinion (Edmond and Roberts 2011). There is no immediate prospect of providing more expert assessors to assist the courts as the Law Commission envisaged. Instead, a new Rule 33.3(h) requires the experts themselves to furnish in their reports the

information that the Court needs to determine whether their evidence is sufficiently reliable.

The onerous demands the Practice Direction makes on trial judges afford one reason to be concerned about how effective this new regime will be in practice. Another is that, although the Rules move some way from traditional adversarialism, they still rely heavily on the defense calling its own experts to challenge forensic science evidence of questionable validity. This may be a reasonable expectation in a major trial like *Reed* where the prosecution relies on complex, cutting-edge science; but what about humbler forms of expertise in low-profile trials where defense lawyers struggle to find adequate funds to pay experts (Wilson et al. 2014)?

Where there is no defense expert, the Rules rely heavily on the integrity and objectivity of the expert called for the prosecution. Without some form of “policing,” it is doubtful whether forensic scientists will go out of their way to qualify their evidence or draw attention to dissenting views in their field, and judges cannot be expected to have the knowledge to discern when an expert has failed in this duty. The Forensic Science Regulator, the official responsible for setting quality standards for forensic science services, which are now largely provided by the private sector, may need to play an increasingly important role in auditing expert reports and controlling their content. It should be possible, at least for the more common types of forensic evidence, to draw up standard clauses setting out the strengths and limitations of the technique and any significant divisions of scientific opinion about it.

What about more novel forms of scientific or expert evidence? In the past, English judges have been eager to give the jury the benefit of the latest developments, and as a result have let self-proclaimed experts get away with unjustified claims. The most notorious miscarriage of justice resulting from this attitude was a murder conviction based on ear-printing (*R v Dallagher* 2002). In principle, it is clear that the onus should be on the proponent of the evidence to show that it is sufficiently reliable to be admitted. The court does not need expertise in the novel area of science to determine whether the experts can point to good reasons why a non-expert jury should believe what they say. The court may, however, need help in critically assessing novel techniques. In *R v Otway* (2011), the Court of Appeal unwisely denied itself such help by holding that only a podiatrist could challenge the evidence of a fellow-podiatrist in the emerging field of gait analysis, and rejected the evidence of a defense expert with extensive general knowledge of forensic science and scientific method. Given the shared interest of podiatrists in advancing the claims of their own profession, it may have been difficult for the defense to locate a suitable expert.

The Criminal Procedure Rules 2014 take a step towards greater accountability for experts who fail in their duties to the court by requiring a party adducing expert evidence to “serve with the report notice of anything of which the party serving it is aware which might reasonably be thought capable of detracting substantially from the credibility of that expert” (r. 33.3(3)(c)). The intention is that any criticism of an expert by the judge in one case will come to haunt them in future cases. This is particularly likely in the case of prosecution experts since the Crown Prosecution Service will presumably be considered to be “aware” of any criticism of an expert in trial where it prosecuted.

Finally, there is a difficult unresolved issue about how scientists can best communicate the uncertainties surrounding their evidence. In *R v T (Footwear Mark Evidence)* (2010), the Court of Appeal strongly criticized the method developed by UK forensic scientists of estimating a Bayesian likelihood ratio, comparing the probability of the results they obtained given the prosecution hypothesis and an assumed defense hypothesis, and translating this for the jury's benefit into a verbal formula, such as that the findings provide "strong support" for the prosecution hypothesis. The issue is too complex to discuss in detail here, but the Court was understandably concerned that the "verisimilitude of mathematical probability" may conceal the limitations of the data on which these estimates are based. Even if the Bayesian approach is a sensible way for scientists to analyze their findings, it cannot tell the jury what degree of belief to have in those findings, which depends on the jury's confidence in the scientists. The Court wants the scientists to convey the strengths and limitations of their own evidence clearly and accurately, but at the same time it does not want the jury to defer to the scientists' view of the weight of their own evidence. This is an epistemological quandary that will not be easily resolved.

Conclusion

Daubert and the English Practice Direction have a similar legal basis: the principle that expert evidence is admissible only if it is demonstrably based on a reliable body of specialized knowledge. If it is interpreted in a way consistent with the Law Commission report on which it is based, the Practice Direction will differ from *Daubert* in focusing less on whether a body of expertise qualifies as "knowledge" and more on the permissible strength of particular inferences drawn from that body of knowledge or experience. In principle, this seems a more satisfactory means of protecting the jury against the dangers of undue deference while also preserving its role as arbiter of the weight of expert evidence. But the flexibility of the criteria and the considerable intellectual challenges involved in applying them make their effects difficult to predict. The jury is likely to be out for some time before a verdict on the Practice Direction can be given.

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