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Review - Expert Evidence and Criminal Justice - Mike Redmayne - 2001

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Expert Evidence and Criminal Justice by Mike Redmayne is a slim volume of some 220 pages divided into seven chapters. Chapter one is an introductory chapter outlining the scope of the book, and setting the scene for some of the areas of discussion in the other chapters.

The substance of the book starts with chapter two in which Redmayne argues that evidence from forensic scientists, by which he means physical material and marks found at the crime scene used for purposes of identification and construction, is seldom employed to detect criminals. Instead forensic evidence is used after the fact for case construction. The process of construction is not some mechanical means of arranging facts into an order which can be regarded, for want of a better term, truth, but is a process of negotiation between fact and cohesive narrative. The extent to which a case can be regarded as “real”, or as a reification of abstracts by investigators is one which Redmayne does not dwell, which is a pity as the real/ideal dichotomy is of fundamental importance to the study of evidence, and is one which certainly warrants further philosophical investigation.

Redmayne then turns his attention to some of the differences between various types of observation used as evidence. The crucial distinction being between interactive types, and natural types. Interactive types are those such as witnesses, where the account given by the witness will be conditioned to some degree by the questions put by the investigators to that witness, and the nature of the witness themselves. Some witnesses may be so suggestible that investigators can unwittingly elicit false testimony from them, others may subtly alter their accounts of events to fit with legal categories such as theft, and recklessness. On the other hand scientific evidence is not quite so open to change during the process of case construction, and can be considered more reliable. However, the interpretation of scientific evidence

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can be subject to some bias, and it is a discussion of the quality of scientific evidence which takes up the remainder of the chapter.

The interpretation of scientific evidence is critically dependent on the relationship between investigators and the forensic scientists whose task it is to interpret their data, and on the nature of other evidence available to investigators. Redmayne uses the example of the changing institutional nature of the Forensic Science Service (FSS) to explore this relationship. For example, the change to direct costing with the greater independence given to the FSS saw an immediate, and temporary fall in referrals from police forces. The FSS responded by expanding their role in volume crime, by educating police officers in the benefits of the use of forensic science in the detection and solution of volume crime, and by a restructuring of their pricing scheme. Redmayne sees many virtues in the relationship between the police and a more independent, but not fully commercial FSS.

The quality of scientific evidence is dependent on the decisions are made by investigators as to how much, and which material to have inspected by forensic scientists. Given the presence of detectable traces at 88% of crime scenes in the United States, one might expect scientific evidence to be used in the majority of United Kingdom cases. However, only 1.7% of notifiable cases in the United Kingdom involve scientific evidence. Most criminal cases turn on straightforward guilty pleas, and even were scientific evidence to come at no additional cost to investigators, it would add little to the eventual outcome of these cases. This reflects a certain wariness on the part of investigators to conserve scarce resources, even where the increased use of scientific evidence, for example in volume crime, might lead to substantial improvements in conviction rates.

Despite the process of case construction with its biases in both witness and scientific evidence, Redmayne does not lapse into an idealist position, instead he sees no reason not to believe that there are such things as facts, and that the careful analysis of these facts can ultimately lead to accurate enough accounts of events for a court to make a rationally based decision as to the matter of law before it.

In the next two chapters Redmayne turns his attention to the use of probability models to

evaluate evidence with a particular focus on Bayesian approaches. Redmayne starts with an example of the analysis of glass on the basis of some physical or chemical property and examines the nature of variability and its relationship to the question of match and how a Bayesian measure of evidential value, like a likelihood ratio, can circumvent some of the problems with categorical statements, such as “the glass recovered from the suspect is a *match* for the glass from the broken window at the crimescene”. The question of identity is touched upon throughout these two chapters. One example is where a lay eyewitness positively identifies an individual as being that individual associated with some offence. The identification is both categorical, and refers in some direct manner to the “ultimate issue”. It occurs to the interested reader that this distinction between what can be said by the expert, and what can be given in evidence by the lay witness, could be resolved to some degree by considering the lay witness’s statement to be shorthand for the observation of sufficient features for the witness to have an unspecified, but high, confidence that the person they observed was the suspect/defendant rather than any other individual. Of more scientific importance is the area of fingerprint identification where courts have, and continue to allow experts to make categorical statements about identity based upon similarity between fingermarks and fingerprints. This contrasts sharply with the model for identity seen in other scientific evidence, but Redmayne considers it to function relatively well.

The Adams case is referred to on several occasions. Adams, a man from England, was charged with rape, and the sole scientific evidence against him was a matching DNA profile. Other evidence, the failure of the victim to identify Adams during an identity parade, and an alibi provided by Adam’s partner, and the fact that Adams did not, according to the victim, resemble her attacker, did not displace the powerful match probability of one in two hundred million provided by the DNA profile. Redmayne uses this case to discuss the differences between the scientific evidence, upon which numerical values can be placed, and the non-scientific witness evidence, and the difficulties in resolving the two. When reading Redmaynes’ account of the Adams case it is difficult not to appreciate the striking differences between the legal approach to evidence and the scientific approach. The scientific approach would usually regard the profile as provisional, rather than as complete, and were some doubt cast upon the case by the other evidence then more DNA loci could be observed in an attempt to exclude Adams. The legal approach to evidence seems to not regard the body

of evidence as open to the same sort of interactive questioning. This leads Redmayne into the area of the presentation of probabilities in court. He starts by reviewing some of the literature on how people unfamiliar with probability and statistics regard statistical evidence in a context with other evidence types, and concludes that the weight of statistical evidence is under valued rather than overvalued by juries.

In his discussion of the problem of the evidential worth of a DNA match made from a database Redmayne points to the fact that some people think that the evidence from a match on a characteristic from a database is of less probative value than that from more conventional means of suspect selection. Redmayne thinks this may be justified to some extent because an individual only falls under suspicion because of some other evidence which occurs to investigators when a database is not used, thus a match from a database is of less probative value than one which is not. However, this is to miss the point. If there is evidence besides the matching characteristic then this should be taken into account as some other, separate, evaluation process, then the two evidence of the match, and the other evidence combined to evaluate the sum of the evidence. Simply fudging the evidential value of a database search will not properly account for the total sum evidence, particularly when it is borne in mind that names are placed onto the database for various reasons, some of those reasons in themselves might be of probative value.

The next chapter is on admissibility in the English criminal courts. Redmayne takes the opportunity to argue for a reliability based rule for expert evidence. With the increase in the use of scientific and expert based evidence in English criminal proceedings there is a clear and unambiguous need to weed out expert evidence which may be faulty, or plain wrong. Most rules in current use in many jurisdictions revolve around the exclusion of an expert, rather than the evidence that the expert has to give. The English system requires that the expert be “skilled” in the area on which they are to give evidence, which is quite a liberal requirement and can easily let in non-experts, or bogus experts. The Australian courts are more exacting in requiring a some academic expertise in the matter under examination. There are several problems with any “qualification based” criteria for deciding the quality of expert evidence. There are instances where observations may not be the subject of academic study. Redmayne makes use of the case of *R. v. Browning* where the defendant

who drove a Renault 25 car was alleged to have driven it across the Severn Bridge at a particular time. The incident was video recorded, but the images were of poor quality, so an expert was called to decide whether the vehicle in question on the video was a Renault 25 or not. In this instance one of the questions which must be considered by the court is “who is a suitable expert?”. Is it a garage mechanic, who deals with such cars in their day to day work, a professor of automotive technology, or some adolescent who happens to be a car fanatic. The only expert who might be allowed to testify under some qualification based rule is the professor of automotive technology. Unfortunately the good professor may be an expert on suspension dynamics and exhaust flow modelling, but would not necessarily be able to recognise a Renault 25 were they were run over by one.

Matters in the United States of America have been more controlled since the nineteen twenties with the introduction of the Frye rule which excluded expert evidence based upon scientific techniques which were “experimental” rather than “demonstrable”, and failed to meet criteria of general acceptability within the community of experts. The ruling in *Daubert v. Merrell Dow Pharmaceuticals* went further along the road of defining criteria for scientific reliability, including peer review, and knowledge of error rates. Redmayne points to some problems with these reliability based tests. A common accusation levelled at the Frye test is that of conservatism in that novel scientific methods may be excluded. This might be bigger problem than first imagined in that forensic scientists do not develop their own methods from basic principles. A technique will be used in a case because a particular forensic scientist sees some value in it as being capable of yielding evidence. It is unlikely that the method will be developed to the extent of passing any Frye test prior to being used in court. It is only after use that any new method will become sufficiently developed to pass this sort of reliability test. It is easy to infer from Redmaynes’ discussion that the only way in which novel scientific techniques could be brought to bear on is were they developed in advance of being used, which would entail a change in the way forensic science worked, and would mean that a substantial amount of forensic sciences resources would have to be devoted to more pure research, rather than the practical casework based model currently prevalent. This though may have benefits in that forensic science could become a more mature science in its own right, rather than the technique led series of scientific sub-disciplines it is at the moment.

Chapter six concentrates on a detailed explication of a ruling in *R. v. Turner*. The facts of the matter are that Turner was in a car with his then partner. His partner told Turner of her infidelity with a variety of other men, becoming pregnant by one, during Turners then recent stay in prison. Turner bludgeoned her to death with a hammer kept in the car. Turner was subsequently convicted of murder, but an appeal hinged on the fact that at the original trial evidence from a psychiatrist as to Turners quick temper was ruled inadmissible, and that this precluded Turner from claiming a defence of provocation.

Turners' appeal was rejected by Lord Justice Lawton on the grounds that the psychologist would not have told the jury anything which they could not deduce from the exercise of their common knowledge of how reasonable people behave when given news of a loved ones wantonness. However Redmayne shows how the ruling has some other effects. The first is the fact that, unless it can be demonstrated that the defendant had some form of reduced responsibility, a person shall be responsible for their criminal actions, and that unless a defendant suffers from some atestable psychological disorder, a persons behaviour is not a subject requiring expert evidence. Redmayne adds detail to the evidence of psychologists by examining battered woman syndrome in some detail, and cases when expert testimony has been used to suggest that the confession of defendants of low ability was as a result of mental impairment rather than an accurate description of the defendants action.

In the *Turner* ruling some aspects of the psychological evidence were held to be inadmissible as the facts which those parts of the evidence were based had been told to the expert by some other party, and were therefore considered hearsay. When reading Redmaynes analysis of the hearsay aspects of the *Turner* rule it is difficult not to feel uneasy about the ramifications for other types of evidence evaluation. For instance, is the fact that I am told by the Office of National Statistics that some large number of a given type of shoe were imported into the United Kingdom, and that I use this figure as a basis for the evaluation of a shoemark identification in a criminal trial hearsay? The number of shoes have not been directly observed by me. In fact there is probably no single person who has observed all the shoes of that type imported into the United Kingdom, the counts of shoes depend on many individuals telling some central repository for this information. Is this then hearsay under the *Turner* rule? And if so is it possible to evaluate evidence in some manner which is admissible in an

English court?

The final chapter is about the long standing question of whether experts in adversarial jurisdictions should be appointed by, and report to the court, rather than appearing for, or against a particular side in any matter brought before a criminal court. Many scientists would prefer to relay their expertise directly to a court rather than through the medium of cross-examination. This is because scientists justifiably feel that their neutrality is compromised in the adversarial system, and that it is difficult explaining complex scientific information to a jury under questioning which can sometimes be hostile. From a legal perspective there is a perceived problem of “expert shopping” where a party will select the expert whose views support that parties case. Redmayne starts by reviewing the literature on expert selection, and partisanship on the part of expert witnesses in the United States of America, and United Kingdom jurisdictions. He argues that motivational bias on the part of experts is more a perceived problem, and that the very public disagreements between scientific experts can lead to rapid resolution of some of the scientific problems citing the interpretation of DNA evidence as an example. Redmayne then examines the role of expert evidence under an inquisitorial system choosing the French system as an exemplar. Here experts are appointed through a variety of mechanisms, and a degree of vetting of any expert is built in through the use of “lists” of experts. However, Redmayne points to the drawbacks of the system in that the lists do not necessarily ensure the quality of the expert, and expert testimony does not receive the same level of questioning that a system such as that seen in the United States of America. Redmayne concludes that the presentation of scientific evidence in criminal proceedings in both adversarial and inquisitorial systems have advantages and drawbacks. He then goes on to outline a system of disclosure rules, and pre-trial meetings which might iron out some of the defects in the use of expert evidence in the adversarial system.

In this book Redmayne articulates most of the major concerns of expert witnesses and lawyers alike in the structure and presentation of scientific evidence in United Kingdom criminal courts. If there is an underlying theme it is in the fundamental differences between scientific epistemology and legal epistemology. At the core of the scientific method is the use of the intellect and direct observation to establish knowledge about the world which is regarded as being provisional. The legal world has to make decisions, it therefore has a

limited ability to regard knowledge as provisional, and courts do not have the apparatus nor expertise by which to gain direct, first hand, experience of the facts for any matter for which it has to make decisions. Instead criminal courts have to use a process of “argument by authority”. This form of argumentation is the antithesis of scientific discourse, and many of the problems of scientific evidence and expert testimony have this dichotomy at their root.

Redmayne uses this book to set out a detailed research agenda of points which need to be solved, rather than presenting the reader with a series of detailed arguments purporting to solve the epistemological questions surrounding expert evidence, . Issues such as the clear need for a theory of forensic science, the technical side of which is already well developed, but fundamental philosophical principles such as the identity/probability, quantified/unquantifiable dichotomies, heterogeneity of evidence types, and processes of reification are sorely in need of a great deal of further work. If the reader is interested in the more philosophical aspects of scientific/legal evidence then they can do little better than read this volume which is thoroughly researched, superbly written, and thought provoking.