Dr Christopher Lawless – Written evidence (FRS0007)

Author Biographical Details
1. I am currently an Associate Professor within the Department of Sociology at Durham University. I have thirteen years experience of conducting academic research on forensic science from a social scientific perspective. This research area has evolved to encompass a number of themes and topics, and there has been active engagement between social scientists and stakeholders in forensic science. My own work has focused on the political economy of forensic science, the shaping of professional practice, the management of relations and communications between stakeholders, and lay understandings of forensic science. I have published numerous peer-reviewed academic papers on these subjects (see for example Lawless 2011, Lawless & Williams 2010), and I also addressed these and other topics in my 2016 book *Forensic Science: A Sociological Introduction* (Lawless 2016). In what follows I have provided responses to specific questions.

*Is forensic science contributing to the delivery of justice in the UK?*

2. In my view forensic science is most likely contributing to the delivery of justice in the UK. I am sure it is possible to identify numerous cases which have hinged on forensic evidence in one way or another. A key challenge however concerns the problem of how to measure or assess this contribution with any precision. It may be possible to gain partial knowledge of this contribution through quantitative measurement by, for example, establishing the numbers of arrests, detections or convictions which have arisen in cases where a particular form of evidence (for example DNA), has been involved (Fraser & Williams 2009, p.616). I am however doubtful that such quantitative assessment provides a sufficiently full account of the criminal justice impact of forensic science. Under what conditions does forensic science lead to desired outcomes? I believe it is very difficult to fully evaluate this impact without understanding exactly how forensic science is used in police investigations. This raises a number of related questions:

- How is forensic scientific evidence used and understood alongside other forms of evidence and information of possible relevance to a criminal investigation?
- How well-understood are the affordances and limitations of forensic science by police investigators? How do these understandings shape the lines of inquiry taken during the course of investigations?
- How does forensic science shape understandings of case circumstances on the part of investigators, and vice versa?

3. Qualitative social scientific research is well-placed to address such questions. Such research does raise issues in terms of confidentiality and the need to avoid interference with criminal justice functions, but I know of at least one example where this kind of research has been funded and undertaken. Professor Fiona Brookman (University of South Wales), Professor Robin Williams (Northumbria University) and Professor Jim Fraser (Strathclyde University) were awarded over £200,000 by the Leverhulme Trust to undertake a detailed study of the role of science and technology in homicide investigations (University of South Wales
2018). At least one other published peer-reviewed paper exists which appears to be based on a similar line of research (Innes & Clarke 2009).

4. Qualitative social scientific research studying the impact of forensic science on criminal investigations could be extended, for example, by considering how forensic science is used in the pursuit of other forms of crime (e.g. volume crime), or by undertaking more in-depth comparisons across forces.

What are the current strengths and weaknesses of forensic science in support of justice?

5. In my view, many of the current strengths lie in the concerted activity ongoing within the forensic scientific community to develop methods for the assessment and interpretation of evidence, and to communicate interpretation issues to legal practitioners. The use of statistical methods for evidence interpretation has been developed and discussed within the forensic scientific community for some time (see for example Evett 1987, Cook et al 1998a, 1998b, 1999). The Royal Statistical Society has been active in engaging with the legal community over the use of statistics for evidence interpretation (Aitken, Roberts & Jackson 2010). In the course of my own research I have studied the application of such methods to criminal investigations. While their application raises a series of practical and operational challenges (Lawless 2016, pp.81-102), and has not always been fully supported by all forensic science stakeholders (Lawless & Williams 2010), I do believe the interest and activity concerning forensic evidence interpretation has helped contribute to a strong ethic of balanced impartiality in forensic work, and an appropriate sense of caution and critical rigour within forensic science.

6. A key weakness concerns the seemingly precarious state of the marketplace for forensic science in England and Wales. This, in my opinion, stems at least in part from a paucity of rigorous strategic thinking concerning policies related to forensic science and biometric technologies. This can be evidenced by the notable criticism of both the Home Office Forensic Science Strategy (2016), and, more recently, the Home Office Biometrics Strategy (2018).

7. The Forensic Science Strategy (2016) was criticised by the House of Commons Science and Technology Select Committee (2016), who, inter alia, raised a number of concerns (p.3):
   - A seemingly ‘evident failure’ to consult widely on the Strategy
   - Vagueness ‘about how the intended locally-negotiated...procurement approach for police forces commissioning from the private sector will deliver the ‘more consistent national approach’”
   - Lack of any ‘mechanism for setting national forensic research priorities, and [inadequacy of] efforts to share data on...research requirements’
   - Lack of detail ‘on the possibility of a joint biometrics and forensics service which risks being taken forward without the benefit of a published Biometrics Strategy’
   - The delay regarding the publication of the Biometrics Strategy.

8. The Home Office Biometrics Strategy was finally published in June 2018, and has also received criticism. For example, the Biometrics Commissioner stated:
'It is disappointing that the Home Office document is not forward looking as one would expect from a strategy. In particular it does not propose legislation to provide rules for the use and oversight of new biometrics, including facial images. This is in contrast to Scotland where such legislation has been proposed. Given that new biometrics are being rapidly deployed or trialled this failure to set out more definitively what the future landscape will look like in terms of the use and governance of biometrics appears short sighted at best.' (Biometrics Commissioner 2018).

What is the scientific evidence base for the use of forensic techniques in the investigation and prosecution of crimes? Are there any gaps in that evidence base?

9. The nature and quality of the scientific evidence base may vary among different forensic techniques. While the scientific evidence base appears to be relatively robust among some examples such as DNA, there may be questions to address regarding other forensic techniques, such as footwear or toolmark analysis. I would be interested to know precisely what kinds of reference databases are used to evaluate the significance of, for example, footwear marks in order to assess the relative abundance or rarity of a particular type of shoe which may have created a mark at a crime scene.

10. I do believe there is a role for qualitative social scientific research in improving understanding of how forensic evidence is interpreted within the constraints of actual criminal investigations. How effectively do investigators use probabilistic or statistical interpretation methods if they only have partial access to databases to assess the significance of certain forms of evidence in certain circumstances? How may the subjective experiential knowledge of casework acquired by individual investigators influence how they interpret or prioritize evidence? And how do other colleagues such as police officers and lawyers understand interpretation methods? A number of research publications have sought to address these and related questions (Innes & Clarke 2009, Lawless & Williams 2010, Kruse 2013, Williams & Weetnam 2013, Lawless 2016, Williams 2017). Individual studies will however be constrained in their scope, in terms of the type of criminal investigations and evidence types studied. I believe there is potential to extend this type of research to more systematically address a range of different criminal cases or forms of evidence.

How can the Criminal Justice System be equipped with robust, accurate and transparent forensic science? What channels of communication are needed between scientists, lawyers and the judiciary?

11. I believe communication and engagement with the legal profession on evidence interpretation is an important part of ensuring robustness, accuracy and transparency of forensic science. While organizations such as the Royal Statistical Society have sought to engage with the legal profession (Aitken, Roberts & Jackson 2010), I believe there is more that could be done, perhaps at some fundamental levels of legal training and education. There may be potential to incorporate education of forensic evidence interpretation into undergraduate or postgraduate law programmes offered by Higher Education Institutions.
Is the current market for forensic services in England and Wales sustainable? Are changes needed to ensure forensic science provision is maintained at the level required? What are the risks of a market approach, for example what happens if a provider goes out of business? And what is the impact on quality?

12. I have followed developments in the forensic market over the last thirteen years, including the closure of the Forensic Science Service. I do hold significant concerns about the current sustainability of the forensic marketplace in the light of developments such as the collapse of Key Forensic Services and the closure of Forensic Telecommunications Services. The latter’s closure may have risked breaking the chain of custody in certain cases (Forensic Science Regulator 2018, p.8). The Forensic Science Regulator’s most recent report also raises concerns about the risks to quality linked to the current state of the forensic market (Forensic Science Regulator 2018, pp.8-10).

What role should the Forensic Science Regulator have? If the Forensic Science Regulator is to have statutory powers, what should these be?

13. In my view, the power to pursue investigations in the case of quality breaches or non-compliance, and the power to enforce appropriate sanctions on providers if necessary.

Is the ‘Forensic Science Strategy’ produced by the Home Office in 2016 suitable?

14. In my view, no. I concur with the House of Commons Science and Technology Select Committee’s response that it is more a plan to produce a strategy, and not a strategy per se. I also support my view by referring back to the other criticisms raised by the Commons Science and Technology Select Committee as presented in paragraph 7 of this document.

15. I believe a discussion of the 2018 Home Office Biometrics Strategy is also pertinent to this question. The latter has also been subject to notable criticism. For example the Biometrics Commissioner claimed that the Strategy ‘is not as forward looking as one would expect from a strategy’ (Biometrics Commissioner 2018, see also paragraph 8).

16. The domains of biometrics and forensics overlap considerably. Many forms of biometric data can be used to deter or investigate crime. I find it surprising however that, despite the stated aim of the 2016 Forensic Science Strategy for a police review of the case for a Joint Forensic and Biometric Service, the two areas have been the subject of separate strategy documents. As such, I find the Biometrics Strategy to be a rather perfunctory document containing only 14 pages of substantive content once the cover pages, foreword, contents pages, glossary and annex material are taken into account. I also found much of the content to provide uncritical descriptions of biometric methods rather than presenting any rigorous strategic content. The briefness of the Biometrics Strategy is of great concern to me given the variety and complexity of biometric data forms, and the possibility that systems may be harnessed to artificial intelligence or ‘big data’ technologies in the future. Issues could arise from the uncritical reliance future societies may place on biometric systems despite the concerns expressed by the Biometrics Commissioner over the potential inability
to fully scrutinize the basis on which software may determine matches between biometric data (Biometrics Commissioner 2017, p.85, para.319).

17. I was part of a team of six academic researchers who organized a series of six seminars funded by the Economic and Social Research Council (ESRC) between 2015 and 2017, with the unifying theme of ‘Genetics, technology, security and justice. Crossing, contesting and comparing boundaries’ (PEALS Research Centre, Newcastle University 2017). This seminar series, in which researchers, policymakers and practitioners participated, identified issues regarding a possible lack of understanding about the limitations of forensic and biometric technologies, concerns over the uncritical acceptance of resulting evidence, and possible lack of government oversight. I am concerned that neither the Forensic Science Strategy nor the Biometrics Strategy adequately reflect these issues. I must also express concern over the length of time it has taken for the Biometrics Strategy to be published.

*How should further research funding for forensic science be justified? What should be the focus of such research? What is the role of UK Research and Innovation, especially considering the interdisciplinary nature of much forensic science?*

18. In my view the role of UK Research and Innovation has tended to be limited, as much forensically relevant research may have fallen through the gaps between the remits of the research councils. Perhaps one solution could lie in the form of more dedicated impact funding. Another possible approach could be to look to other domains which may represent possible models for translating research activity into innovative operational solutions. The translation of medical research into clinical interventions may represent one such example of a possible model.

*Where are the gaps in research and understanding of forensic science? How and by whom should the research questions be articulated to fill these gaps?*

19. I refer back to my comments in paragraphs 2, 3, 4, 9 and 10 of this document. I believe research questions should however reflect the interests of the wider community of forensic science stakeholders as much as possible.

*Is enough being done to prepare for the increasing role that digital forensics will have in the future? Does the Criminal Justice System have the capacity to deal with the increased evidence load that digital forensics generates?*

20. Since 2015 I have been involved with a research project funded jointly by the ESRC, Engineering and Physical Sciences Research Council, the Metropolitan Police Service and the National Crime Agency to examine the criminal justice impact of cloud computing. In terms of preparing for the increasing role for digital forensics, it may be useful to develop better understanding of the profiles of potential perpetrators of crimes which could involve a digital forensics component. I am aware of some anecdotal evidence that suggests many perpetrators of such crimes may be young (teenage or early twenties) and impressionable. Such offender profiles have not however been definitively established, and this therefore represents an avenue for concerted social scientific research. Improved understanding of the demographic profile of
perpetrators of digital crimes may link digital forensic strategies with wider police procedure more effectively.

21. The Criminal Justice System may well face pressures caused by increased digital evidence loads. One way to address this could be to develop roles for computer science in developing preventative methods for deterring or preventing digitally-enabled offences.

References


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