University of Reading, School of Biological Sciences – Written evidence (FRS0055)

Inquiry to submit evidence into forensic science proposed Questions.

1. Is forensic science contributing to the delivery of justice in the UK?
   Yes, greatly. The use of DNA, for example, has become routine in many cases. And it has been developed in the UK. But such development has stopped and innovation in forensic science has been taken over by Continental Europe and the United States.

2. What are the current strengths and weaknesses of forensic science in support of justice?
   **Strengths:** Robust and established molecular methods for human trace analysis. Expertise on a variety of trace evidence and its analysis is available at Universities and other research intensive institutions.
   **Weaknesses:** Lack of modern biological trace analysis and environmental trace analysis in human cases, methodology to unify the diversity of subdisciplines and probabilistic methodology to interpret the variety of trace evidence. Lack of a unified training framework for frontline police officer to recognize the potential and use of modern biological traces. Engagement of government, criminal justice system or police with University or research intensive institutions’ experts. **Because the expertise, in part, is still here in UK.**

Understanding and use of Forensic Science in the Criminal Justice System

3. 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?
   The scientific evidence exists and is provided by peer reviewed scientific publications, and research, delivered from many UK Universities and other research institutions; however, government funding for research in forensics in academy is inexistent. Who sign this document finances research in trace evidence by using self-funded international PhD students; this means that once they finish their studies they take their expertise abroad.

4. How can the Criminal Justice System (CJS) be equipped with robust, accurate and transparent forensic science? What channels of communication are needed between scientists, lawyers and the judiciary?
   The NFI (Netherland Forensic Institute) links directly University (academics) with case work at the institute. This does not exist in UK but can be implemented by organizing a call for experts from Universities, institutes and museums and generating a comprehensive list of experts for consultation and links. At present only a handful of experts from private companies (which do not do science), and one or two institutes are involved in the analysis of evidence. It is not clear what selection mechanism was used to decide consultation from a few; this is a biased approach. Forensic investigations need unbiased consultation of experts.

Standards and regulation

7. 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? Our main concern is with quality of the analysis delivered by private enterprises, businesses, as these are no longer subjected to peer review. Universities, research institutions in UK instead are subjected to rigorous checks for research quality and ethics of research. For us, it is surprising that the Criminal Justice System, and police, prefer consultation with private businesses instead of using their prestigious research and academic institutions. Universities for example, will charge less and work will be done by the experts that have trained those running the forensic business or market. Have in mind that forensic companies have learned and trained in universities.

8. Is the system of accreditation working successfully to ensure standardised results and the highest quality analysis and interpretation of significance of evidence? I do not think so. In addition, experts at universities or research institutes should not be subjected to the same process of accreditation they already teach or train.

10. What lessons can be learned from the use of forensic science in Scotland and Northern Ireland? What can be learned from the use of forensic science overseas? NFI (Netherlands) is a good example of integration of academic expertise with forensic investigations.

**Forensic Science research landscape**

12. 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? *Trace evidence analysis, especially non-human biological traces, modern molecular methods, DNA analyses, probabilistic and mathematical approaches to trace analysis, aims missing from the criminal justice agenda. Calls for funding on these topics should be available for academic and research institutions.*

13. 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? *Academics and experts, research institutions should be involved in the formulation of research questions; adequately trained practitioners are important for their knowledge in real case work.*

14. How can a culture of innovation in forensic science be developed and sustained? *Through a stable provision of funds for research and development. In fact, the signatories of this document are experts in non-human trace evidence analysis working at international level. MAP is the Research and Development Liaison of the APST-ENFSI (Animal Plant Soil Traces Advisory group of the European Network of Forensic Sciences Institutes). HRB has run the first Workshop on trace evidence analysis financed by the British Council, benefiting the CJS of Mexico and other Latin American countries ([http://forensic-acarology.com/about](http://forensic-acarology.com/about)). Our research is of international relevance, spanning almost all continents, Figure 1 shows our international network in trace evidence analysis (Figure 1).*
15. Are there current or anticipated skills gaps? Who should have responsibility for and/or have oversight of training?
Yes, for example, i) in the field of biological trace evidence, ii) lack of expertise in species identification, iii) probability... etc. Academy, universities must train the future experts.

Figure 1
International network built by MAP and HRB

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