Using Forensic Science to Increase Detections: Imaginaries, Orthodoxies & Evidence.

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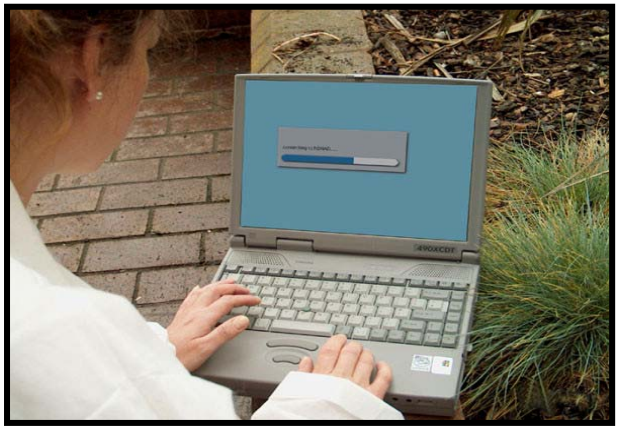
Outline of Argument

- An underlying issue – imagining vs. realising forensic science contribution to crime detection
- Capturing the current contribution
  - Problems of organisational orthodoxy
  - Some recent research studies
- Increasing the future contribution
  - Encouraging and using scientific and technological innovation
  - Understanding forensic work within ‘integrated criminal investigations’
  - Documenting variation and disseminating innovation
- Co-producing ‘basic-and-applied’ critical knowledge

The imaginary as technological promise: ‘point of crime’ profiling

The crime scene sample

The portable DNA test



Mobile database search

The rapid arrest

The Imaginary as operational promise

- The FSS General Crime Reduction Model for Property Crime (1999). ‘Year One’
  - Step One: ‘Recovery efficiency’: 22% of crimes scenes examined will yield CTM (some scenes more than one type).
  - Step Two: ‘Matching efficiency’: DNA@30%; fingerprints@20%; Footwear @5%; Toolmarks@2%.
  - Step Three: ‘Detections’: 60% of matches will produce detections.
  - Step Four: ‘Additional Admissions’. each primary detection will lead to 2 further admissions.
  - Step Five: ‘Subsequent Deterrence’: Each crime detected will deter a further two crimes.

Capturing the Contribution: the Problem of Organisational Orthodoxy

- Two co-existing approaches to evaluating and maximising the effective uses of forensic science
- 'Organic' model in major and serious crime investigation:
  - Utilise wide range of technologies with relevant expert support
  - Integrate forensic technologies into co-ordinated investigation
  - Forensic science as a service.
- 'Procedural model' in volume crime investigation:
  - Maximise managerial knowledge & control of performance
  - Integrate forensic contribution into attrition model
  - Small range of forensic commodities 'delivered' to other investigators

The Orthodoxy Surfaces: the Politics of Forensic Bioinformation Regimes

- *March 1st 2006 Hazel Blears at House of Commons:* Information on the number of serious crimes such as murder, manslaughter and rape that have been detected using DNA profiles taken from suspects who had previously been arrested, charged but not convicted of an offence is not collected by the Home Office as detections are achieved through integrated criminal investigation, and not by forensic science alone.
- *March 3rd 2009. Alan Campbell Written Answer*: Figures for the number of crimes detected in which a DNA match was available only include crimes detected in which a DNA match was reported by the NDNAD. They do not include DNA matches which arise through case work in serious crime...this data is not collected centrally. It is also important to note that detections are achieved through integrated criminal investigation, not through DNA alone.

The Orthodoxy Reflected in Research

- Forensic Science in Major and Serious Crime Investigations
  - Indirect Studies. Roycroft, *What Solves Hard to Solve Murders*
  - Case-Based Studies. Nicol et.al., *Reviewing Murder Investigations*
- Forensic Science in Volume Crime Investigations
  - Attrition studies. Burrows et.al., *Understanding the Attrition Process*
  - Studies of local innovations. Bond, *The Value of DNA Evidence in Detecting Crime*
  - Systematic Reviews. Bradbury & Feist, *The Use of Forensic Science In Volume Crime Investigations*
  - Randomised Control Trials. Roman et.al. *The DNA Field Experiment*

Observations on Current Research

- Regularly contrasts imaginary with actual performance
- Tends to focus on narrow range of technologies
- Over-emphasis on attendance and recovery issues; under-emphasis on use of artefacts and intelligence by investigators
- Persistent use of small range of explanatory concepts e.g. ‘Performance Culture’; ‘Motivation’
- No framework or mechanism for accumulating and disseminating studies

Increasing the Contribution (i): The Imaginary and Techno-Scientific Advances

- The extension of individual domain knowledge.
  - Genetics as an example
    - Improvements in STR profiling
    - Phenotypical inferences
- The extension of domain databases
  - New domains
  - Extensions of current database size
- Interoperability and databases
- Market Forensics: product innovation
- Home Office and NPIA Commitment
- But NRC 2009 *Strengthening Forensic Science in The United States* critical of many claims for domain knowledge.

Increasing the Contribution (ii): Improving Understanding of 'Uses'

- Grasp the Grammar of Forensic Science Support
  - Directly examine the skills, purposes, instruments, texts, materials, routines and modes of agency that constitute forensic contributions to investigations
- Establish the Epistemics of Forensic Science Support
  - The use of background knowledge assumptions to evaluate the quality of particular forensic artefacts
  - The use of technical and contextual knowledge to determine the evidential significance of such artefacts
- In order to know what and how forensically informed investigative outcomes are achieved across a range of cases and places

What Range of Investigative Contributions?

- Key investigative contributions:
  - Identifying a suspect
  - Eliminating a suspect
  - Suggesting a line of inquiry
  - Curtailing a line of inquiry
  - Establishing a sequence of events
  - Identifying a victim
  - Confirming available information
  - Refuting available information
- Any forensic artefact may make several different ‘contributions’; Any single ‘contribution’ may depend on the production and interpretation of several different artefacts

Epistemic Considerations

- Key Operational question: what is the evidential ‘impact’/’strength/’weight’ of available artefacts
  - Crucial/Significant/Corroborative/Limited/None
- Key research questions: how, when and with what effect, answers are produced
- Possible analytical resources:
  - ‘Case Assesment & Interpretation’?
  - ‘Evidence Interpretation’?
  - ‘Sociological Studies of Knowledge Work’?

Researching Forensic Grammar: Knowledge Production, Transfer and Exchange.

- Independent critical research designed and executed in co-production framework. To:
  - supplement current modes of internal knowledge making and dissemination;
  - pay particular attention to integration of different types of knowledge and practice
- With significance for both operational and policy contexts
  - Knowledge of grammar and epistemics encourages reflexive practice
  - Encourages internal knowledge transfer about forensic contribution - different crime types, different roles, different modes of organisation
  - Policy-relevant understandings of variations in contribution between technologies, crime types, roles and places.
- UPSI & SIPR as new actors

- Questions?