



Themes and Variations in the Social Life of Forensic Genetics: Credibility, Legitimacy & Utility

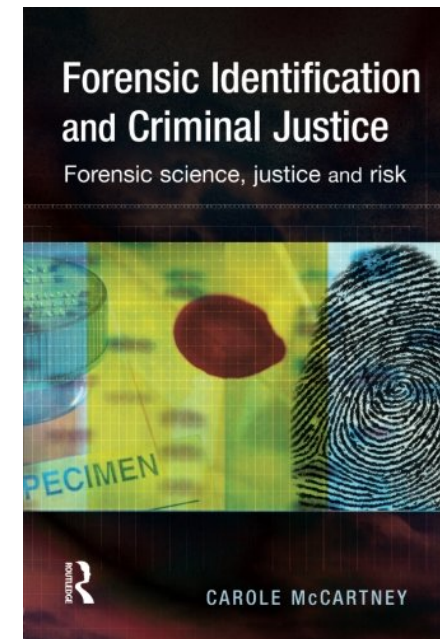
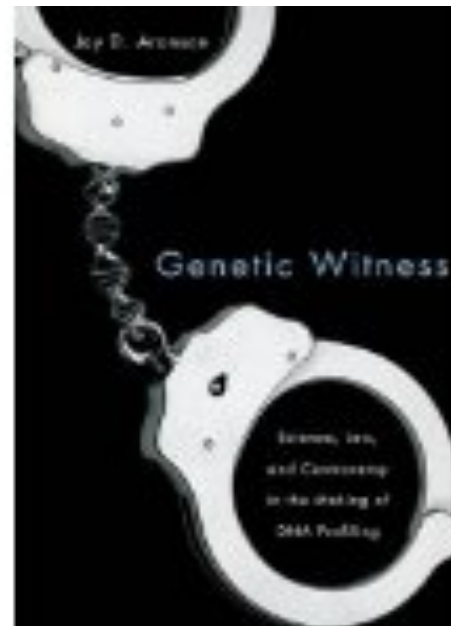
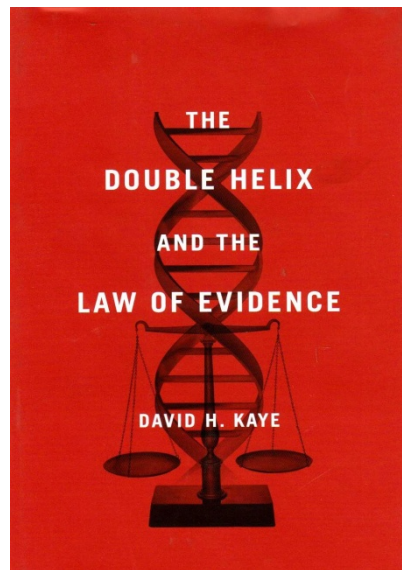
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Northumbria University



Biolegal Credibility

- 'Biolegality': how developments in biological knowledge and technique are attuned to requirements and constraints in the criminal justice system, while legal institutions anticipate, enable, and react to those developments (Lynch & McNally, 2008)
 - New objects of interest: DNA samples and profiles
 - New regimes of governance and use: forensic DNA standard setting; databases; changing rights and status of the suspect body
 - New social orderings: databased active suspect criminal population; science-led investigative strategies

'DNA Wars' and their settlement

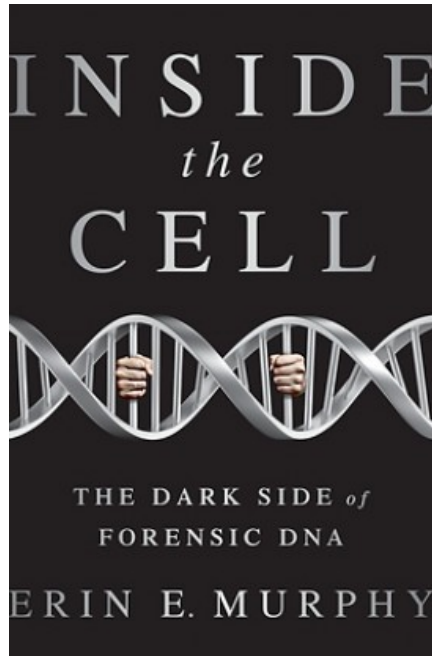


Post War Dominant Credibility Narrative: Gold Standard



- Extending epistemic authority:
 - Disciplinary comparison and the 'inversion of credibility'
 - US National Research Council (2009) Strengthening Forensic Science in the US: A Path Forward
 - Continuous technological innovation
- Extending operational reach:
 - Cold case prosecutions
 - DNA Exonerations

Post War Contrarian Narrative: The Dark Side



- False (prosecutorial) certainties
 - Peter Gill (2014) Misleading DNA Evidence: Reasons for Miscarriages of Justice
- Scene & laboratory contingencies
 - Sensitivity and transfer – and contamination
 - Mixture analysis – and proprietorial software

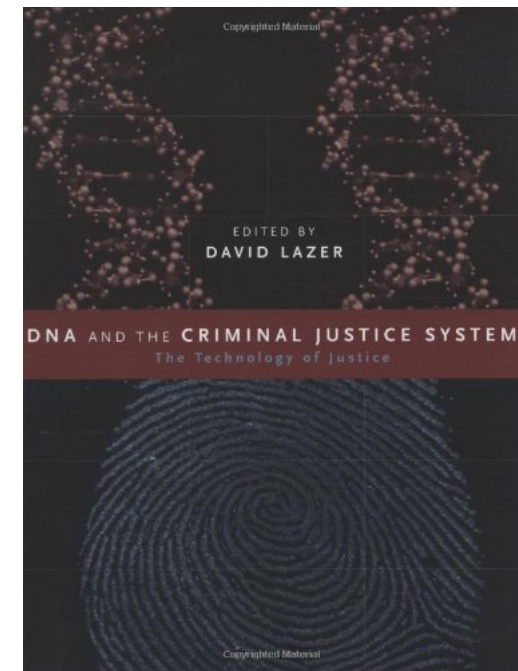
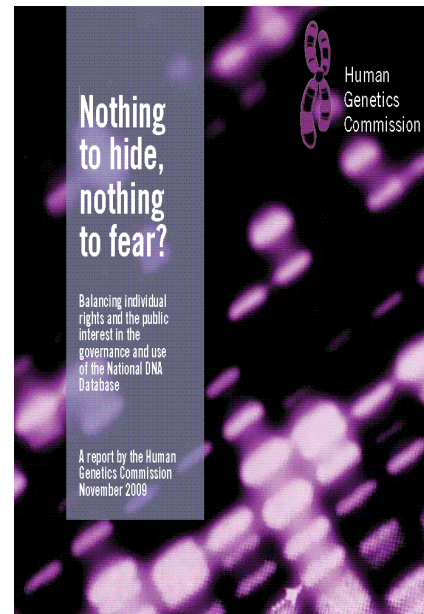
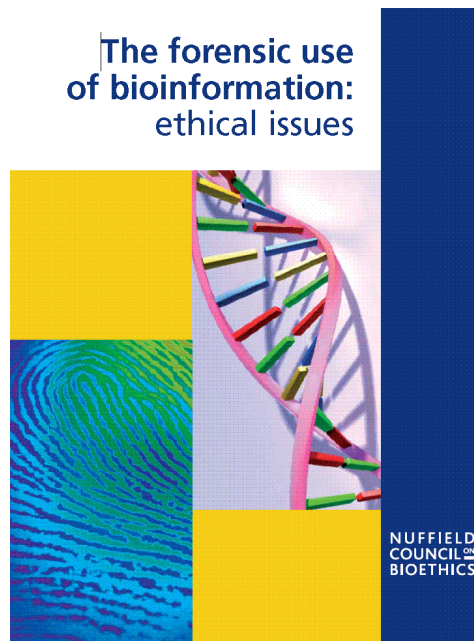


Current credibility challenge: managing forensic biophoria

- 'One of the problems was DNA was called the gold standard," Bruce Budowle, director of the University of Texas Health Science Center's Institute of Applied Genetics, said. "Big mistake." (Texas Tribune Report on Meeting of Texas Forensic Science Commission, 2015)
- Starrs (2003): 'Soon, if we are not exceedingly careful to rein in the public portrayals of the forensic sciences to a more realistic scientific level, the forensic sciences will be found to be wanting in credibility by juries for failing to measure up to public image' Foreword to James & Nordby *Forensic Science*.
- Gill (2015):...'recognise the limitations' that can be adduced from evidence...never express a personal preference on source or activity level propositions, unless it is backed up by solid peer reviewed research; anything else is mere 'speculation' that courts may well confuse with 'expert opinion'.

Biosocial Legitimacy: Universal Trajectory with Local Variations?

- Genetic databasing: collecting, using and retaining DNA from more human subjects
- Genetic informativity: making more use of crime scene DNA

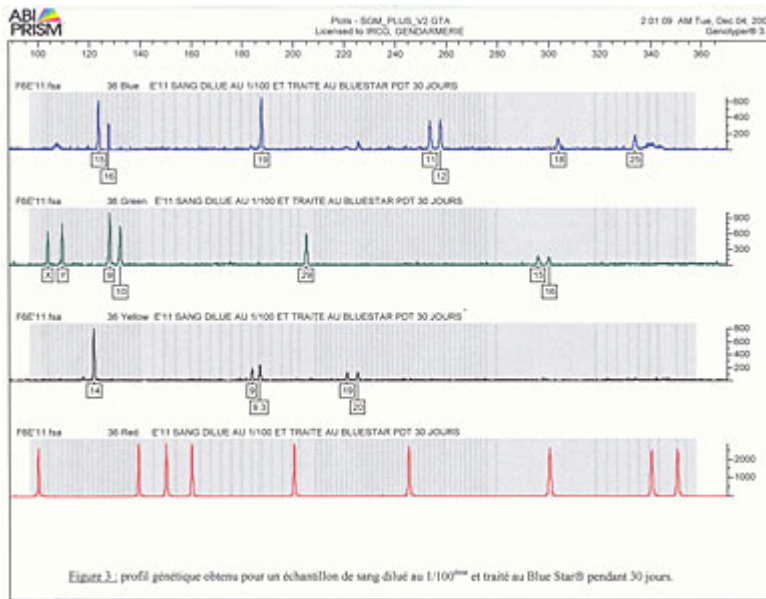




Universal (?) DNA database expansion trajectory

- Increase scope of subject sampling without consent
 - Widen range of offence types
 - Collect regardless of immediate relevance
 - Collect at earlier stage of criminal justice process
- Retain more subject samples and profiles for longer periods – or indefinitely
- Allow all subject profiles to be speculatively searched against all incoming crime scene profiles
- Retroactively sample convicted prisoners/others
- Increase crime scene DNA recovery
- Allow low stringency searching
- Include more autosomal STR loci and add Y chromosome and Mt loci

Extending Genetic Informativity: From Empty Signifiers to DNA Photofits





Current legitimacy challenge: governing NGS

- 'Currently, we are targeting our nuclear DNA typing approach to the question at hand. We use mitochondrial DNA if we don't have enough nuclear DNA. We use autosomal STRs if we want to identify an individual. We use Y-chromosome STRs when we have a male contribution that we would like to identify. We use predictive SNPs if you want to learn about geographic ancestry, or phenotype. In massively parallel sequencing that can all be run in one reaction. So we make more use of existing DNA than we are currently able to do.'
 - Boundary question: Is 'making more use of existing DNA' a legitimate open-ended forensic ambition?
 - Normalisation question: will such 'bundling' routinize what were once exceptional strategies?
 - Retention question: what will NGS mean for DNA databasing?



Bioforensic Utility: Unfilled Knowledge Gap?

- A key finding in relation to the evidence surrounding the NDNAD is that there is currently insufficient evidence available to demonstrate its forensic utility, certainly to the extent that its proven usefulness might justify greater intrusions into individual privacy. We are particularly concerned that no deliberate and appropriate efforts appear to have been made to redress this prospectively. (Human Genetics Commission. 2009)



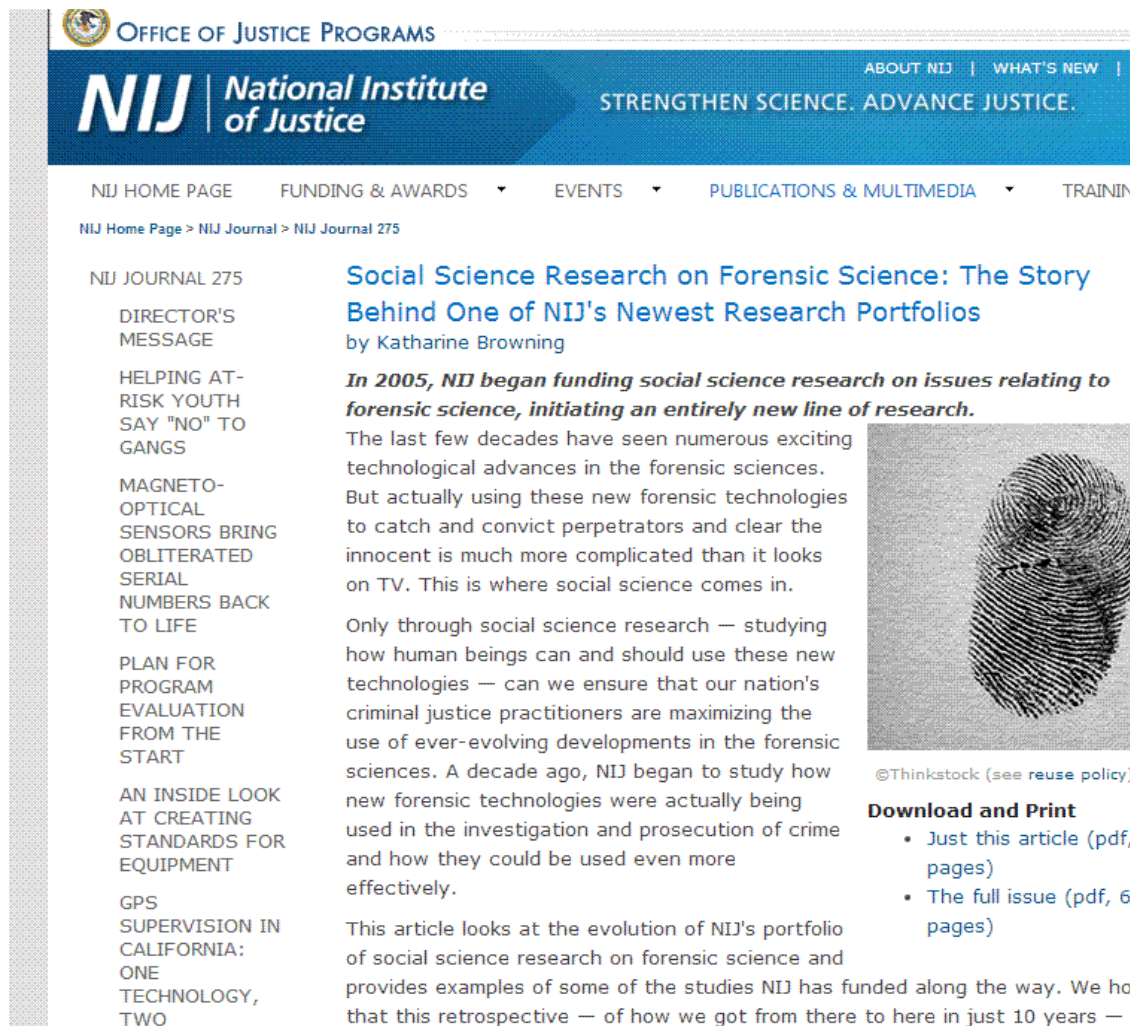
Researching Forensic DNA Use Value: an unclear picture

- UK Pre-2005 Home Office 'New Public Management' approach: volume crime
- UK Practitioner-led studies
 - NPIA forensic science and homicide – database focused
 - MPS forensic effectiveness in homicide – not technology specific
- US NIJ 'Social Research on Forensic Science Portfolio'

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Current Utility Challenge

- Generating robust knowledge of investigative effectiveness:
 - New and varying 'profiles'
 - Variety of investigative and prosecutorial contributions



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Social Science Research on Forensic Science: The Story Behind One of NIJ's Newest Research Portfolios


by Katharine Browning

In 2005, NIJ began funding social science research on issues relating to forensic science, initiating an entirely new line of research.

The last few decades have seen numerous exciting technological advances in the forensic sciences. But actually using these new forensic technologies to catch and convict perpetrators and clear the innocent is much more complicated than it looks on TV. This is where social science comes in.

Only through social science research — studying how human beings can and should use these new technologies — can we ensure that our nation's criminal justice practitioners are maximizing the use of ever-evolving developments in the forensic sciences. A decade ago, NIJ began to study how new forensic technologies were actually being used in the investigation and prosecution of crime and how they could be used even more effectively.

This article looks at the evolution of NIJ's portfolio of social science research on forensic science and provides examples of some of the studies NIJ has funded along the way. We hope that this retrospective — of how we got from there to here in just 10 years —



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Summary Remarks

- Social life of forensic genetics both shaped by and shapes imaginaries, narratives and counter-narratives
 - Credibility: evidence collection, interpretation & presentation
 - Legitimacy: crime control and the acceptable uses of techno-scientific innovations
 - Utility: possibility of robust research on the investigation order
- Challenges: contingent controversies vs. essential contestability
 - Credibility challenges managed by scientific consensus-building and operational standardisation
 - Legitimacy and utility challenges less yielding: essentially contested character of key ethical and social concepts