

# How does science help investigate crimes?

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## Abstract

The use of scientific evidence in the process of criminal investigations has become an inseparable part of modern day policing, yet the process of crime investigation has only recently been exposed to academic scrutiny. In light of the recent developments in policing and the shifts towards 'crime management', this paper will make an attempt to inquire into the use of forensic evidence and forensic techniques and their impact on resolving criminal cases and whether the role of the Senior Investigative Officers at crime scenes is increasingly relying on the use of scientific methods.

## Introduction

The use of scientific evidence in the process of criminal investigations has become an inseparable part of modern day policing, yet the process of crime investigation has only recently been exposed to academic scrutiny (Newburn, 2012). It is now commonplace to observe that policing is changing markedly just as the world being policed itself is being transformed. A number of important and fairly rapid changes have been affecting the structure and nature of British policing in recent decades (Newburn and Reiner, 2012). Firstly, the bulk of crime has been on the increase since WWII, and even though it has been on the decrease over the past decade, this doesn't mask the fact that over a longer time period the overall direction of change has been towards much higher levels of crime, affecting all communities (Maguire, 2012). Secondly, the contemporary political landscape not only in the UK, but also in other neoliberal democratic states

(Cavadino and Dignan, 2006), can be characterized by the adoption of a ‘law and order’ approach towards tackling the problem of crime.

As a result of these transformations, politicians in general have become more involved in the management of policing structure and resources (Newburn, 2012) and this has resulted in a shift towards ‘crime control’ (Garland, 1996; Garland, 2001), reflected in the establishment of new national-level agencies, such as the SOCA (Serious Organized Crime Agency), the main focus of which is to prevent, detect and contribute to the reduction of crime and mitigate the impact it has on the wider public (see Serious Organized Crime Act, 2005, s. 2). The placed emphasis on proactive and intelligence-led policing, as well as crime management (Tilley, 2003), has had a significant impact of the auxiliary forces of the police force, namely the provision of forensic sciences services to support criminal investigations (Pepper, 2010; Newburn et al. 2012). In light of these developments, this paper will make an attempt to inquire into the use of forensic evidence and forensic techniques and their impact on resolving criminal cases and whether the role of the Senior Investigative Officers at crime scenes is increasingly relying on the use of scientific methods.

### **Is the scientification of criminal investigations a help or a hindrance in identifying the truth?**

Historically, the process of criminal investigations has only always been considered as a part of routine police work, rather the responsibility for identifying the offender initially lay with victims (Stenfox, 2009). In the contemporary era it has been suggested that the State has claimed monopoly over violence, therefore in the process of criminal investigation,

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the police and criminal justice perspective tends to dominate, with policing priorities seen to be the only priorities (Roberts and Manikis, 2011). As the criminal justice sector has been increasingly bureaucratised (Tilley, 2003), this has significantly affected the ways in which scientific evidence and methods are used in the process of criminal investigations.

One notable example is the collection of forensic evidence in serious cases, where recent research in the USA has suggested that in an examination of assault cases, forensic samples were only collected in 30 per cent of the cases, and of those cases, only 12 percent had the evidence submitted (Baskin and Sommers, 2012). There was found to be a positive correlation with physical evidence collection and arrest (ibid.), but sample collection was not uniform, not necessarily progressed. In cases of robbery, physical evidence was collected in almost a quarter of all cases, however less than half of this evidence was submitted to analysis. Again, there was an indication that those cases with collected evidence had higher arrest rates, but it should also be considered that evidence collection was not always completed prior to the arrest (ibid.) The conclusion was that there was no more likelihood of a conviction in those cases where physical evidence was available than in those cases where it was not, witness and victim statements were of more importance. Despite the existence of studies which suggest that physical evidence and forensic examination increase the effectiveness of criminal investigation (Burrows et al. 2005, in Hekim et al. 2013; Jones and Weatherburn, 2004, in Hekim et al. 2013; Innes, 2003), they are underutilised.

On the other hand, Nicol et al. 2004 in a review of 34 police service murder inquiries identified shortcomings in the ways in which crime scenes were processed and the commissioning of analytical testing of collected evidence (12% of all cases), though the research failed to take notice of the potential impact which the findings could have of the process of criminal investigation in the longer-term. Two further UK studies have come to the contradictory conclusions about the role of forensic science in homicide investigations. Roycroft's (2007) interviews with 32 Senior Investigative Officers about category A and B homicides found that they reported that ' forensic material' contributed to solving the crime in 38% of cases, although no details were provided of how this contribution was achieved.

In contrast, Stelfox's (2006) study of homicide investigation outcomes in Greater Manchester Police came to the conclusion that forensic evidence played only limited role in criminal investigations, as evidence provided by witnesses or offenders was considered to be of greater value. Even though the abovementioned studies have provided some insight into the use of forensic techniques, they all have a significant shortcoming. Ultimately, these studies fail to grasp the extent to which the social context of criminal investigations has an impact on the use of scientific and forensic methodologies As Williams and Weetman (2013) argue, the use of scientific methods varies from a one criminal investigation to another. Expanding the statement further,, different methods can be utilised at different stages of the investigation, depending on the amount of financial and human resources available. Forensic science priorities, actions and contributions shift according to the stage that inquiries reach, and also that the timing and

length of these stages varies accordingly to features lying outside of the control of those providing forensic science support. Research capable of establishing the effectiveness of forensic science support to homicide investigations requires consideration of the necessary, typical and exceptional achievements at each of these stages as well as the practical contingencies to which they are subject (ibid.).

Although there are criminal cases where the mal-use of forensic techniques has resulted in miscarriages of justice (Walker, 2002; Brian, 2004; Tong et al. 2009; Hall et al. 2009; Rossmo 2009) this should be interpreted by taking into account the effects which institutional pressure might have of the investigative process, as well as human agency. For this reason, the use of scientific techniques in itself in criminal investigations is not a hindrance to the establishment of truth (Allsop, 2013, Williams and Johnson, 2008), rather it is the presence of personal bias which could have an adverse effect on criminal investigations (Markey, 2012; Fisher, 2012). Having discussed the problems associated with the reliability of scientific techniques, the next section of this paper will focus its attention on the role of the Senior Investigative Officers and whether they rely too extensively on scientific evidence when solving serious crimes.

### **Does the role of the Senior Investigating Officer now rely too much on ‘ scientific’ methodologies when solving serious crime?**

With the increasing improvements in the technical aspects of crime detection and the processing of crime scenes, the comprehensive management and decision-making processes associated with it have become

as crucial part of resolving serious crime incidents. In a climate where criminal investigation and the scientific methods associated with have gained wide public attention, even though the common portrayal of forensic personnel is only partially true, this has raised disproportionately the expectations which the lay public has (Robbers, 2008). As a result of that, the role of Senior Investigative Officers (SIO) and their effective management of crime investigative personnel have increasingly been scrutinised (Brookman, 2008). Their role in criminal investigations and their decisions as to the use of particular scientific methodologies at crime scenes should not however be separated from the shift of policing which occurred over the past two decades (Maguire, 2003). The emphasis placed on crime management, as well as accountability in terms of performance have all to a significant extent altered the nature of criminal investigation. As Brookman and Innes (2013) note, in fact it has become increasingly difficult to measure success, because it is multi-dimensional, therefore for SIOs to conduct a successful investigations, they need to strictly adhere not only to procedures, but as well as expenditure, outcomes of cases, crime prevention and reduction. In the cases of serious crimes, these can be perceived as complex social systems in which SIO play only a limited role (Sennett, 2012) and the demands placed on them can vary on a case by case basis (Williams and Weetman, 2013).

This is not to deny the decision-making process which SIOs exercise in terms of deployment of personnel. Rather, the use of discretion itself is linked to the wider culture of 'crime management' and efficiency of the services provided. As the forensic sector is closely linked to the law enforcement, the

existence of rigorous ethical frameworks also constrains the use of discretion. The lack of objectivity and the presence of bias may deem any forensic evidence and the methods used for it may make it inadmissible during court procedures. The administrative decisions which SIO have to make in line with time constraints and budget allowances may also have a negative impact on the outcome of cases (Brian, 2004). For these reasons, it could be argued that SIO themselves rely on the use of scientific techniques and methods in criminal investigation to an extent that can directly correspond and meet the pre-existing frameworks which guide the operation of the forensic sector.

With the closing of the Forensic Science Service in the UK and the incorporation of forensic personnel into police forces nationwide, the decisions which SIO make will come under increased scrutiny as their performance will be evaluated in terms not only of successful deployment and use of scientific methodology for the recovery of evidence, but also against indicators which are related to law enforcement in general (Brookman and Innes, 2013). To date, however, no research has been conducted into the levels of discretion which SIO exercise whilst making decisions associated with the retrieval of evidence from crime scenes via the use of scientific methodologies. For this reason, any debate on this topic is likely to be speculative and not based on sound empirical evidence. Having provided an overview of the roles of SIOs at crime scenes and the some of the problems associated with crime scene management and the use of scientific methodologies, the last section of this paper will summarise the argument and provide recommendations for future research.



## Conclusion

As this essay has demonstrated, the shifts which have taken place in the law-enforcement sector over the past two decades and the placed emphasis on ' crime management' and law-enforcement have also had an effect on the provision of forensic services and the use of scientific methodologies at crime scenes. Although the increased scientification of crime investigation has not had a negative impact on the outcome of cases, a potential pitfall which could affect the outcome of cases and result in unsafe convictions is associated with human agency and the distancing of ethical guidelines (Markey, 2012; Fisher, 2012). As it already noted,, at the present time there is a lack of research on the impact which human agency, personal bias and decision-making have on the outcome of criminal cases and this, a problem that is prevalent and applies to all personnel operating within the forensic sector, including Senior Investigative Officers (Williams and Weetman, 2013). In order to address this matter,, future research on the topic could potentially concentrate on the problem of discretion and set this in the context of the legislative changes which have transformed the nature of criminal investigation.

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