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THE JOURNAL OF HOMICIDE AND MAJOR INCIDENT INVESTIGATION

The Journal of Homicide and Major Incident Investigation encourages practitioners and policy makers to share their professional knowledge and practice. The journal is published twice a year by the National Policing Improvement Agency (NPIA) on behalf of the Association of Chief Police Officers (ACPO) Homicide Working Group (HWG). It contains papers on professional practice, procedure, legislation and developments which are relevant to those investigating homicide and major incidents.

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Editorial Team

Editor: Earl Robinson

Assistant Editors: Fazeelat Saleem and Dr Natalie Benton

Commissioning Editor and ACPO HWG Liaison: Dr Peter Stelfox

All enquiries about the journal should be addressed to:

Dr Peter Stelfox
Head of Investigative Practice
National Policing Improvement Agency
Wyboston Lakes
Great North Road
Wyboston, Bedford
MK44 3BY

Email: homicide.journal@npia.pnn.police.uk

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Contents

THE 2010 SALLY PEARSON MEMORIAL AWARD	
The Phoenix Database: Homicide analysis, action learning and knowledge sharing	5
by Will Linden, National Violence Reduction Unit, Scotland; Detective Inspector Patrick Campbell, Strathclyde Police	
Operation Hydration: Internet murder enquiry	23
by Detective Chief Inspector Tony Heydon, Nottinghamshire Police, Homicide Unit	
Social Networking as an Intelligence/Investigative Tool: Case study	33
by Detective Inspector Nigel Niven, Murder Investigation, Royal Virgin Islands Police Force; Detective Sergeant Ray Massie, Major Crime Department, Hampshire Constabulary	
Injury Photography: Is it more than skin deep?	45
by Nicholas Marsh, Evidence Recovery Unit, SERIS	
National Ballistics Intelligence Service Update	57
Financial Investigation: SIO Considerations	61
by Steve Adcock, Proceeds of Crime Trainer, National Policing Improvement Agency	
Case study of Mark Corner, the Murderer of Two Sex Workers in Liverpool	75
by Detective Superintendent Laurence Carr, Merseyside Police	
Responding to Major Disorder in Prison Establishments and Immigration Removal Centres	87
Neil James, NPJA Programme Director for the PIP Level 4 Project	
Focus On... Forensic Pathology	103
Featured Expert: Professor Guy Ratty, Chief Forensic Pathologist, East Midlands Forensic Pathology Unit	
Interviewed by: Fazeelat Saleem, Investigative Practice Team, National Policing Improvement Agency	

THE 2010 SALLY PEARSON MEMORIAL AWARD

The Phoenix Database: Homicide analysis, action learning and knowledge sharing

Will Linden, National Violence Reduction Unit, Scotland
Detective Inspector Patrick Campbell, Strathclyde Police

Abstract

With the introduction of the Phoenix Database and Operation Phoenix, there has been a major shift in how Strathclyde Police learns from homicide investigation. Through a process of introspection and examination, post-investigation action learning and instant feedback is now available to the force. In terms of content and remit, the Phoenix Database is the first of its kind and goes beyond the traditional databases used by Forces across the country. This ACPOS endorsed project is now helping to shape all of Scotland's forces, giving Scotland a unique insight into all aspects of homicides past and present.

Will Linden is a Senior Analyst within the National Violence Reduction Unit in Scotland, is the designer of the Phoenix Database, and is currently researching the prevention opportunities that determine fatalities in serious acts of violence. Pat Campbell is a Detective Inspector with Strathclyde Police with 14 years experience and advisor to Operation Phoenix.

Contents

1.	Scotland's Homicide Database – A Brief Historical Guide.....	7
2.	The Phoenix Rises.....	8
3.	Business Benefits	11
4.	Operation Phoenix: The Debrief Process.....	15
5.	The Future is Here: A National Homicide Database	20

All correspondence should be addressed to:
will.linden@vruscotland.pnn.police.uk
Patrick.Campbell@strathclyde.pnn.police.uk

1 Scotland's Homicide Database – A Brief Historical Guide

Scotland has the dubious honour of being consistently in the top three most violent countries in Europe, and, compared to England and Wales, the homicide rate is nearly double. The United Nations Report on Violence (2009) ranked Scotland as having the fastest rising murder rate in Europe, with a rate of 2.1 per 100,000 population, joint with Finland and Portugal. Within Glasgow (Scotland's largest city), the murder rate is 5.34 per 100,000 population and, in some areas of the city, homicide is one of the largest killers of young men (Leyland, Dundas, Mcloone and Boddy, 2007). Between 1981 and 2003 the homicide rate rose in Glasgow by 83 % (Leyland, 2006). Despite this significant volume of murders, detection rates are high, with over 98 % for Strathclyde Police, which is testament to the skill and professionalism of the investigators.

The concept of a specialised homicide database within Strathclyde Police is not a new idea. In the late 1990s, a database was constructed to capture basic level information on the motives, modus operandi and progress of the investigation. However, the level of information collected was both minimal and inconsistent, with little focus on the data collection methodologies and the potential use of the system.

In 2004, Operation Trinity, a joint investigation between Lothian and Borders, Strathclyde and Tayside Police, was established, examining the possible links between a series of unresolved murders from the 1970s. The investigation was initiated following a positive test on low copy DNA from two homicides in Lothian and Borders. However, due to insufficient production storage protocols for historical unsolved cases at the time, there was no such evidence available for the Strathclyde murders. After consultation with the Serious Crime Analysis Section (SCAS) and the Federal Bureau of Investigation (FBI) it was concluded that it was very likely that the same person(s) committed both the Edinburgh and Glasgow murders.

To test this hypothesis, Strathclyde Police decided to examine every female homicide in Scotland since 1965. As a result, the Operation Trinity Database (in Microsoft Access) was born. At the time, this was unique in the UK as it covered every female homicide (with over 600 female homicides) regardless of their detected status and, unlike other databases, did not limit itself to sexually related homicides.

The Operation Trinity Database was designed simply to prove the similarities between the cases in question. While this allowed Forces across Scotland to collaborate and share information on homicides in a new way, like its Strathclyde predecessor, it was not suitable for the development of a new database/information system.

2 The Phoenix Rises

In 2008, a short life working group was established by Strathclyde Police, chaired by Detective Superintendent Colin Field. This group contained members from Information Technology (IT), Strathclyde Police and the Violence Reduction Unit (VRU). The group established the remit and scope of the new database through an extensive consultation process with clients (both internal and external), as well as other experts in academia. At the time, the best example of a potential homicide database was the Historical Enquiry and Analytical Database (HEAD), which was established in conjunction with the Historical Enquiries Team (HET) to examine all deaths attributed to 'The Troubles' in Northern Ireland from January 1969 to the Good Friday Agreement in 1998¹.

Text Box 1

The Violence Reduction Unit [Scotland]

Established in 2005, the Violence Reduction Unit (VRU) targets all forms of violent behaviour.

Adopting the public health approach, as described in **WHO (2002) World Report On Violence and Health**, the unit aims to:

- reduce violent crime and behaviour by working with agencies in the fields of health, education, social work, etc.;
- achieve long term societal and attitudinal change;
- focus on enforcement to contain and manage individuals who carry weapons or who are involved in violent behaviour;
- explore best practices and develop sustainable, innovative solutions to this deep rooted problem.

More information can be found at <http://www.actiononviolence.com/about-us>

¹The Troubles was the common name for a period of ethno-political conflict (political and paramilitary) in Northern Ireland which at times spilled over into mainland UK and the Republic of Ireland. The conflict was centered on the constitutional status of Northern Ireland and the relationship between the catholic nationalist and protestant unionist communities.

The consultation exercise identified several key themes for the new database to address, including behavioural and linkage information, strategic analysis for prevention, management information and the sharing of best practice. Through this consultation process and scoping of existing databases and software, the group decided the database would be built on an i2 Analyst's Workstation platform. i2 Analyst's Workstation is in essence a suite of i2 products including iBase (the database), Analyst's Notebook (analysis software), GIS connectivity and DataMiner (statistics etc.)

i2 Analyst's Workstation is used by a number of forces in the UK in two different ways: firstly as a analyst tool for extracting information from crime recording systems and intelligence systems for analysis of crime and secondly for small purpose built databases for the examination of specific data sets like ANPR (Automated Number Plate Recognition), financial and telephone data. Although it had never been used with anything like the scope of the Phoenix Database, the working group decided it could be adapted to fit their purpose.

Post consultation, the design of the database was undertaken by the VRU, who used the core design functionality of the software to build a new database. This proved to be cost effective, allowing the database to be flexible and not tied to any specific IT contractor to make even the simplest changes, with practical implications on the speed of development and cost.

Figure 1 Phoenix Database screens



3 Business Benefits

In today's economic climate, investment in new technology is difficult to justify as budgets are being cut or projected to be cut quite significantly. The pressures on forces up and down the country to provide a cost effective, high quality service has never been greater and it is likely that this current climate will result in a fundamental shift in policing and the way the police organise themselves to provide the vital services the public both want and need.

The Phoenix Database and the procedures that accompany it allow Strathclyde Police to reap some of the rewards of smarter thinking and enable the force to adapt quicker and make better or more informed decisions.

3.1 Behavioural and linkage information

After examining existing databases and academic literature, and consulting with subject experts, a detailed list of potential fields was drawn up covering all aspects of homicide, including the victim, offender, behaviour, location and other MO (modus operandi) markers.

Aside from the information retained in the database fields³, there are a number of documents imbedded within the database, including post-mortem reports, forensic reports, crime scene manager reports, interview strategies, interview transcripts, behavioural reports, photographs, CCTV and various other multimedia. With no restrictions on what documents are stored, this information is dependent on the nature and complexity of the investigation. Having all this information attached to the relevant homicide not only increases the ability to perform complex analysis more readily, but also centralises key documents for future reference.

Links between cases are generated in three separate ways: firstly by the researchers⁴ who collate the information and add it to the database; secondly, automatic joins based on unique information points such as addresses, names, specific (unique) weapons, cars, telephone numbers, membership of a gang or organised criminal group etc.; thirdly there is a manual check by the Phoenix analyst who checks every record added to the database and can create links that would otherwise not have been picked up.

The importance of geographic analysis is paramount, with all address points contained within the database geo-coded. This coding is meticulous and not approximated to nearby address points like houses, businesses and postcodes. Therefore, if a body was discovered in the middle of a field or an alleyway, then the XY address accurately indicates this to the nearest metre. This was a difficult task, particularly with the historical female homicides imported from the SCOTHOM database, as many of the addresses from the 1960s and 1970s no longer existed, so some approximation had to occur.

³Approximately 300 fields

⁴Experienced detectives

There are major investigative benefits from having this level of information stored in one place, particularly in relation to unsolved cases. Firstly, the force now has a centralised information hub for all current homicides, unsolved and missing persons (suspected criminality), and up to 15 years of all other homicides. Secondly, the database will improve the speed at which analytical products can be developed in relation to homicides and linking them with other crimes.

3.2 Strategic analysis

Understanding the nature of homicides and identifying different typologies can help police forces develop investigative strategies. Much work has been done in the area of profiling, where typically, experts from NPIA and other organisations will be brought in to develop profiles to aid the investigation.

This is a valuable asset to an investigation; however, it is only really used for ‘cruel and unusual’ cases. Most homicides do not fit into this category and could be described more accurately (if not a little glibly) as the ‘cruel and the usual’, thus aid from Behavioural Investigative Advisors (BIAs) and other profilers is not usually required.

3.3 Management information

The need for statistics and information both internally and externally can be a major drain on resources. The Database will provide instant statistical analysis on all aspects of homicide, reducing the time taken and the impact on staff to provide this information.

With the current economic climate, all forces across the UK and Scotland are under pressure to perform at a high level, yet trim the costs from their businesses. Homicide investigation can be expensive with some enquiries costing millions of pounds. More than ever there is a need for more accountability and, although it is accepted that no two investigations will be exactly alike, the collation of this information will make forward planning a bit easier and prepare forces better for the future.

3.4 Sharing of best practice

A key element of the Phoenix Database for investigators is the ability to share knowledge and create a national (virtual) community of those involved with the investigation of homicides and other deaths. The skills brought on through experience are not well distributed throughout the country, as some forces in

Scotland have very few murders on an annual basis and even less ‘complicated’ homicides. This is a risk, as sometimes we put officers into situations whereby critical decision making in the early part of an investigation can significantly impact upon the progress of the investigation. For example, if sexual homicide of a trafficked prostitute occurs in a more rural area, the officer will be able to search the database for similar homicides or similar circumstances and retrieve a myriad of information on previous cases, including contacts in other forces. By expanding the scope and geography of the database it is possible to collect more and more information for SIOs and other investigative team members to access instantly.

Getting best practice information is not without cost as it requires a significant debriefing process; however, such a process not only benefits other forces but has significant and sometimes instant benefits for the host force.

3.5 Sharing of best practice – knowledge management

Training can only take you so far; without the experiential learning that comes from doing the job, we will never get fully effective investigators and SIOs. This means some forces may never have the opportunity to develop investigators into SIOs due to low numbers of major investigations and because of the repetitive nature of other type of investigations. Shared learning is vitally important and Phoenix allows the creation of a virtual learning network aimed at practitioners. The learning gleaned from a debrief interview is added to the database and is then available for practitioners to access over the force’s Intranet.

Figure 2 Virtual learning network for practitioners

The screenshot displays a virtual learning network interface. At the top, there are navigation tabs for 'Lines of Enquiry' and 'Strategy 1'. Below these are search filters for 'Impression: Artist Impression' and 'Media Appeals: Yes', and 'Crimeswatch etc: National Circulations: Yes'. On the far right, a vertical menu lists various categories: Violence, Sexual, Weapon, Restraint, Transport, Accused, Victim, Criminal History, Locus, Last Seen, Deposition Main, Court Details, Victim History, Admin Enquiry, Admin Key Personnel, and Admin - Enquiry Lines.

The main content area is divided into two columns. The left column lists various topics such as 'Arrest Strategy- actions and decisions', 'Forensic Strategy- actions and decisions', 'Crime Scene Manager- actions and decisions', 'Interview Advisor Strategy- actions and decisions', and 'House to House Strategy- actions and decisions'. Each topic has a corresponding 'Expand' button. The right column lists related learning resources like 'Arrest Strategy-Key Learning', 'Forensic Strategy-Key Learning', 'Crime Scene Manager-Key Learning', 'Interview Advisor Strategy-Key Learning', and 'House to House Strategy-Key Learning', also with 'Expand' buttons.

The whole raison d'être of Phoenix is to improve the quality of investigations which will, in turn, help avoid common pitfalls, eliminate issues, speed up investigations and improve evidence gathering and, as a result, case preparation.

The debrief process is a semi-structured interview following the closure of a homicide, chaired by the Area Detective Superintendent. It brings together the SIO and key members of the investigative team, including the crime scene manager, interview advisors, family liaison officers etc. The list is not limited as it depends on the scope and nature of the inquiry.

Specialists can only be taught so much in a classroom (even with advances in technology and teaching methods, such as the use of Hydra/Minerva suites). The real learning comes from working enquiries in the real world. By sharing experience and knowledge, there is an opportunity to not only avoid pitfalls, but also to identify shared issues and concerns and find resolution, eg, the use of new techniques or the employment of specific expertise. However, the most important aspect of all learning is to not only identify good practice but also flag up poor practice. Sometimes learning comes out of failure; investigating homicides is a complex task with the SIO having to make hundreds of decisions on a daily basis and even those with years of experience will encounter new issues and challenges. Like most forces in the UK, Strathclyde has had to re-adjust its staffing due to mixture of the growth of the police in the 1980s and the current financial climate and, as a force, can ill afford to lose the vast amount of institutional knowledge generated over the years. By capturing this learning we can aid not only the investigators of tomorrow but also the current crop, to ensure that we remain as resilient and effective as before.

4 Operation Phoenix: The Debrief Process

Following criticism from the HMICS in 2009, where the poor quality and sometimes non-existent debrief process was hindering forces' opportunities to learn and improve the quality of their investigations, Strathclyde Police initiated a comprehensive review of the process. It was quickly established that the Phoenix Database and Operation Phoenix were a perfect fit and would not only ensure debriefs were carried out consistently, but also provide a vehicle for which this learning could be shared.

4.1 Debrief structure

The development of the Operation Phoenix database has enabled the introduction of a revised debrief process for all detected murders. This enables the identification of both good and poor practice which is essential if the Force is to further enhance

its capability and shape future investigative and operational practices. This review process is also recommended by ACPOS.

The following debrief process must now be adhered to:

1. Within 14 days of the successful conclusion of a murder investigation (all categories), a debrief meeting must be arranged and chaired by the Area Detective Superintendent. All relevant personnel must be in attendance.
2. A Murder Enquiry Debrief Report will be submitted to the Detective Chief Superintendent, Crime Division (Operations) and is subsequently retained by Crime Policy and the Operation Phoenix team.
3. Crime Policy and the Operation Phoenix hub maintain a spreadsheet of all relevant areas of good practice or areas of concern which have been highlighted through the course of an investigation which may have to be addressed immediately.
4. Actions will be allocated by the Detective Chief Superintendent, Crime Division (Operations) via Crime Policy in respect of matters which need to be addressed.
5. Good and poor practice will be disseminated at the Area Detective Superintendents /Detective Chief Inspectors meetings or by memorandum when applicable.

These debriefs contribute to a more holistic and useful overview of not just how an incident was managed but its wider impact on the force. To that end, broadening the criteria for the debrief report should include what the impact was not just to the host division or specialism, but more widely across the force.

4.2 Debrief process – The debrief meeting

This meeting is chaired by the local Area Detective Superintendent, with core members of the investigative team usually including the SIO, crime scene manager, interview advisor, family liaison officer and a member of the Phoenix team to record the details of the discussion.

The meeting is tightly structured to cover all areas of the investigation including the various strategies. During the meeting the aim is to establish:

- what worked and why?
- what was not successful and why?
- where were the blockages?
- what could have been done differently with the benefit of hindsight?

Text Box 2

Debrief Agenda

- 1 Attendance**
- 2 Chair's Opening Remarks**
- 3 Apologies**
- 4 Overview of Murder**
- 5 Major Lines of Enquiry**
- 6 Strategy:**
 - Crime Scene Management
 - Victimology Lines of Enquiry
 - Identity and Prioritise MO/Suspects
 - Research SCAS and NPJA
 - House to House Manager
 - Intelligence Manager
 - Analytical Products
 - HOLMES/MIR
 - Family Liaison
 - Arrest Strategy
 - Forensic (Productions)
 - Liaison with other Agencies
 - Employment of Experts
 - Interview Adviser Strategy
 - Impact Assessment
 - Artist Impression
 - Media Appeals
 - Crimewatch/Crimestoppers
 - CCTV
 - National Circulations
 - Disclosure
 - Finance/Costings
- 7 Highlighted Difficulties/Problems**
- 8 Unusual Aspects to Investigation**
- 9 Best Practice/Recommendations**
- 10 Any Other Business**
- 11 Close of Meeting**

4.3 Debrief process – Managing the actions

Identifying good and poor practice is essential for aiding existing SIOs as well as the next generation of SIOs. However, if poor practices and problems have been identified then there is an onus on the force to deal with the issue and prevent it reoccurring. However, as more and more actions were collected, the management of the actions became more and more complex. To overcome this issue, the actions are now managed using HOLMES.

By creating an account within HOLMES, any actions identified as part of the Phoenix debrief can be allocated and tracked. Not only does this utilise an existing police system that most investigating officers are well versed in, it also allows the management of action allocation across the country and a permanent auditable record of the actions and the outcomes to be generated that can be shared nationally at no cost. After an action is discharged, an update is added to the Phoenix homicide record to ensure the learning is complete.

4.4 Debrief process – Disclosure

Does having such a detailed debrief so soon after the conclusion of an investigation pose a threat to any subsequent court case? Having examined this issue carefully, Strathclyde Police have concluded the issues discussed and critically examined should be disclosed as a matter of course in an investigation anyway. It is accepted that this process will highlight some of the areas where there was some concern, but it will also highlight what actions were taken during the course of the investigation to deal with these issues.

Delaying the debrief until after a court case will result in the loss of vital information and learning as the delay could be quite substantial, with those involved in the investigation reliant on their notes, policy files and memories to recall what happened. There is also the loss of the potential to resolve actions quickly so that other investigations do not suffer similar fates.

4.5 Debrief process – Example outcomes

Text Box 3

Interview Adviser Strategy

The interview adviser was not introduced to the enquiry in time. As a result, the standard of initial witness statements was poor, identifying a possible training need. The facilities used to conduct the interview were of a poor standard, in particular the microphones used in the recording of the interview, where the volume level was insufficient. The flow of information to the interviewing officers was poor, resulting in several stoppages. Consideration could be given to the use of ear-pieces, as used by other forces.

Text Box 4

Forensic Strategy

During post-mortem examinations, the stomach contents are not being seized as a matter of course and will only be retrieved as a result of a specific request by the SIO or Crime Scene Manager (CSM). This evidence may prove crucial where the time of death is important to the enquiry. This will be highlighted to ensure that both CSMs and SIOs are aware that they should make a specific request if these are required.

Text Box 5

Crime Scene Manager Strategy

The position of the body has been questioned as a civilian witness in precognition was of the opinion that the deceased's hands had been down by her side initially; however, in the scene photographs one hand is clearly raised behind her head. It is unknown if a witness has inadvertently moved the body, either in an effort to administer assistance or checking for vital signs or whether it is simply a case that the witnesses are mistaken in their original observations.

Text Box 6

Incident Room HOLMES and Documents Storage

The DMIU (Digital Media Investigations Unit) were not present at briefing and, during the course of a debrief interview, the movements of the accused were highlighted and expanded upon the initial movements supplied. An initial high priority action should have been raised to capture the possibility of further CCTV captures. It was later discovered that the opportunity had been missed and it has been highlighted that a CCTV coordinator should be appointed to the enquiry team at the outset to ensure liaison is maintained and clear direction and dynamic priorities are communicated and actioned.

5 The Future is Here: A National Homicide Database

The VRU will manage the database, its design and developments, on behalf of Strathclyde Police and the Scottish Government. The VRU will also act as a central conduit for access to the database ensuring the integrity of the database is maintained. Through the guidance of Detective Superintendent Field, Strathclyde Police are the lead force and have recruited a highly skilled research team consisting of experienced detectives who both collate the information and arrange the debrief interviews. As of 1 April 2010, ACPOS have agreed that the Phoenix Database will be the first national homicide database in Scotland. All forces have agreed to include all new homicides onto the database. The research team and the VRU will act on a consultancy basis to help each of the forces develop the skills to ensure their homicides are accurately captured and added to the database.

There are many challenges still to be met over the next year, such as back record conversion and how far realistically each individual force can commit to capturing the information, as well as the countrywide networking of the system. However, the adoption of the data standards and the principles of Phoenix have been agreed so that when the database goes live across the country, each of the forces will have already contributed.

The Phoenix Database is a clever product, allowing researchers, analysts and SIOs to access and interpret a vast array of information. However, like all databases, it is only as good as the information put into it and without dedicated skilled investigators with a passion for what they are doing providing the information, it would just be another broken toy.

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Operation Hydration: Internet murder enquiry

Detective Chief Inspector Tony Heydon
Nottinghamshire Police, Homicide Unit

Abstract

This article details Operation Hydration, the investigation into the murder of Matthew James Pyke. Pyke and his long-term girlfriend Joanna Witton were both enthusiastic internet 'Wargamers' and, after their preferred site closed in November 2007, they set up their own forum (Wars Central) together with fellow gamer James Mellor.

David Heiss, who lived in Germany, joined the site and became infatuated with Witton; he eventually travelled to the UK and viciously murdered Pyke.

The author, Detective Chief Inspector Tony Heydon, has served twenty-six years with Nottinghamshire Police. He is a career detective and has been a Senior Investigation Officer (SIO) on Nottinghamshire's Homicide Unit for four years. He has a wealth of experience in the investigation of serious crime and has been SIO on a number of murder enquiries.

Contents

1. Background - Internet contact	25
2. Actual Contact	27
3. The Obsession Escalates	28
4. The Point of No Return	29
5. The Trail to Nottingham and Back	30
6. The Investigation	30
7. Lessons Learned	31

All correspondence should be addressed to:
tony.heydon@nottinghamshire.pnn.police.uk

1 Background - Internet contact

Advanced War Bunkers was an established Internet war-gaming site, set up in the USA. These sites are the type generated by enthusiasts in order to allow like-minded people to chat about their interest and give advice on how to play a certain game. The administrators of the forums set up the rules of the site and this would include what was and what was not acceptable for discussion.

However, in November 2007, Advanced War Bunkers failed when the administrators pulled out. Joanna Witton, Matthew Pyke and James Mellor set up their own forum, calling it Wars Central. Some members of Advanced War Bunkers quickly joined the new forum, including all the players listed below. All the members had used nicknames for a long time and it was by this nickname that they were always identified. Whilst some nicknames were straightforward, many used were “character” names used when playing fantasy war games.

Figure 1 Image of Matthew Pyke



The main site users who were central to the events discussed here were:

Matthew PYKE - Shade

Joanna WITTON - Jojo

James MELLOR - Eggy

Gavin SILLETT - Gav

David HEISS - Eagle the Lightning (EtL)

Witton and Pyke had met two years earlier through the Advanced War Bunkers site and, as a result, when Witton got a placement at Nottingham University, they set up home together in the city centre, living above the Orange Tree Public House. They lived as a couple very quietly, spending hours in their flat on the computer playing various games. They rarely went out.

Mellor had never met Witton or Pyke, but he had a 'cyber relationship' with Witton before she had met Pyke in person. Sillett had been a close friend of Pyke from school and hence knew a lot more about Pyke and Witton than any of the other gamers.

Activity continued online between all the members as normal until David Heiss started to develop an infatuation with Witton.

David Heiss was a 20-year-old male, living with his grandmother and aunt just outside Frankfurt in Germany. He is unremarkable in many ways; his parents are divorced, he had no social life, no police record, no friends, and worked as an office junior. His entire life appeared to centre around his computer. He slept in a bunk bed, had children's wallpaper in his room and, although extremely intelligent, his books included the complete Mr Men collection. One point to note: he had been expelled from the German Army after two weeks for being mentally unsuitable.

Figure 2 Image of David Heiss



Heiss' personal preference was for intelligent red-headed women. Joanna Witton seemed to fit this profile, as she had long ginger hair and was an administrator of the Wars Central website. Her academic status elevated Witton in Heiss' mind. Using his computer skills, Heiss began to research Witton. He began following her using social networking sites and soon obtained a mobile phone number for her. This may have been a version of cyber-stalking, but Witton never thought Heiss would be a problem, so she ignored his interest in her.

On 3 May 2008, Heiss sent Witton a lengthy e-mail expressing his love for her. He made many detailed references to a history of her past life, schooling, friends, hobbies, which was all information he had obtained from the internet.

2 Actual Contact

Using the mobile number obtained through Facebook, Heiss made contact and spoke with Matthew Pyke on the 13 June 2008 when he discussed the site but wanted to talk with Witton.

On the 14 June 2008, Pyke and Witton went on holiday to Devon. That same day, Heiss started to make enquiries with other site users, trying to find a home address for Witton. He contacted Gavin Sillett who initially denied having any address for them. However, Heiss persuaded him to reveal further information. Sillett gave Heiss an address, stating he thought it to be an old one. It was in fact their current address, above a pub in the centre of Nottingham, only fifty yards from the city's main Police Station.

Heiss then posted information on the site stating his intention to travel to Nottingham on 21 June 2008. As Pyke and Witton were away on holiday, they had no idea of these developments, until James Mellor sent Witton a text on the 20 June 2008 warning her. Mellor was clearly nervous at this time, but more importantly thought Heiss was breaking the rules of the Forum.

At 19.15 on 21 June 2008, Heiss was outside Pyke and Witton's flat, as they returned from holiday. It would appear that Pyke did not consider Heiss a threat at this time and invited him into the apartment. However, Joanna Witton was more concerned. Enquiries revealed that she contacted over twenty local hotels trying to find alternative accommodation for Heiss. Having failed, Heiss was allowed to stay in their apartment, sleeping on the floor. However Witton stayed awake all night exchanging texts with James Mellor, saying how scary it was and trying to find out how Heiss had obtained their address.

The following day, they booked Heiss into a local Premier Inn and, unbeknown to Witton, he spent the week following her around Nottingham, using this opportunity to establish what her daily routine was.

Heiss spent time travelling around the country visiting other War Central site users. There was much online chatter and it became clear that Heiss was obsessed with Witton and only wanted to talk about her to the other gamers. The gamers were exchanging messages commenting on how strange Heiss was. Heiss was well aware of these comments.

On the 16 July 2008, Heiss returned to Nottingham; however, by this time Pyke had had enough of his obsessive behaviour and there was an argument between them. Pyke told Heiss to go and to leave both him and Witton alone. Heiss returned to Germany on the 18 July 2008.

3 The Obsession Escalates

On the 22 July 2008, Matthew Pyke posted nineteen reasons why he hated Heiss to the other gamers. Pyke made it very clear that neither he nor Witton wanted any further contact with him. Heiss found out and was furious.

This only appeared to fuel Heiss's obsession and he spent much of his time communicating with Gavin Sillett trying to gain more information. By this time Sillett had grown increasingly uncomfortable with Heiss and accused him of acting like a stalker.

On the 31 July 2008, Heiss, apparently on the spur of the moment, decided to drive to Nottingham using a car borrowed from his uncle. He came through the Channel Tunnel at 23.53 that night.

At 02.45, on the M11 North, he was involved in an accident. After colliding with an HGV, his vehicle left the road, crashed through a wooden fence and ended up in a field. Heiss received an injury to his wrist and was hospitalised overnight. The local police attended the accident and spoke to Heiss but took no personal details off him. Later, when the officers were traced, they recalled the driver to be a German who stated he was travelling to Nottingham to see his girlfriend, but could add nothing further. Heiss gave details to the hospital but not his correct address. His car was recovered and destroyed by the AAA (European AA), who recovered personal effects from the vehicle and sent them to Heiss's true address in Germany, details of which they found in the vehicle.

The following morning, Heiss discharged himself from hospital and caught a train to Nottingham. Using a local internet café, Heiss contacted Sillett and told him he was in Nottingham and had come to see Witton. They had a disagreement and Sillett blocked Heiss from his internet site. Sillett let Pyke know Heiss was about.

As Witton got off her bus from work, Heiss was waiting for her; she evaded him and ran home. Heiss then started to contact Pyke and Witton online.

Eventually, in order to try and persuade him to leave them alone, Witton and Pyke agreed to meet Heiss at a local park the next day, Saturday 2 August 2008.

At this meeting Heiss was inconsolable, crying continually. Witton told him in no uncertain terms she wanted nothing to do with him and to leave them alone. Heiss finally accepted the situation and agreed to lay off the contact and he returned to Germany by train that day.

4 The Point of No Return

Heiss's calls to Witton restarted immediately when he got home and Witton blocked him online. This is seen as a major slight to online gamers and Heiss was furious, bombarding her with messages and threats via other formats, so Witton relented and unblocked him.

The acrimonious nature of the messages, which were now daily, had increased. Heiss threatened to kill himself in front of Witton and tried to defend his behaviour to the other gamers. All the gamers agreed to ban Heiss.

A later interrogation of Heiss's computer showed that, at 19.41 on 11 September 2008, he booked a flight to Birmingham for the 18 September 2008, and he also re-read the 'love' letter he had sent to Witton on the 3 May 2008. Further interrogation showed that at 18.23 on the 17 September 2008, Heiss contacted his sister using her online name of Mizuno Hoshi and asked her to log onto the Wars Central website using his password on the 19 September 2008, thereby creating him an alibi. She agreed and indeed did so. The examination also revealed that on that date he created two documents, the first entitled 'CONFESSION', which is in fact a suicide note purporting to be from Pyke, telling Witton he does not love her and saying goodbye; also in this letter 'Pyke' sends his love to named members of his family. It is not clear how Heiss got that level of information but it was accurate in every detail. The second document, entitled 'I MADE A DECISION', is a suicide note for himself (Heiss) claiming Pyke drove him to take his own life.

5 The Trail to Nottingham and Back

After finishing work at 16.00 on Thursday 18 September 2008, Heiss caught the bus to Frankfurt airport, telling his family he was going to a party. He flew to Birmingham via Amsterdam arriving at 21.15. He then caught the train to Nottingham and walked to Pyke and Witton's flat. On virtually every stage of his journey, Heiss was captured on CCTV. It later transpired, after speaking with German agencies, that CCTV is not common in Germany and it does not record images, so Heiss assumed it would be the same in the UK. He was wearing multiple layers of clothing and carrying a knife he had secreted in his hold luggage. After sleeping on the apartment building's flat roof, he waited until Witton left for work in the morning at about 06.55. At about 07.40 Heiss then knocked on the door of the flat, which was opened by Pyke wearing a dressing gown. Heiss attacked him with the knife forcing him back into the flat. Heiss followed Pyke around the flat repeatedly stabbing him until, bleeding heavily, Pyke fell to the floor; Heiss sat astride him and continued to attack him, inflicting eighty-six stab wounds in all.

Pyke's fake 'suicide' was obviously no longer an option, so Heiss ransacked the living room and removed items trying to stage a burglary. He then changed his clothes and washed himself before leaving with the 'stolen' property. Heiss had forgotten to bring a change of shoes for himself, so he put on Pyke's shoes which were size 6; Heiss is a size 11.

After dumping the property, Heiss retraced his steps back to Birmingham Airport. CCTV captured his journey where he can clearly be seen limping, because he was wearing ill-fitting shoes and also from a leg wound he accidentally inflicted on himself during the attack. At 18.41 that day, he arrived back at home and computer analysis later showed he was immediately on his computer. He was in England for less than sixteen hours.

At 18.09 Witton returned home from work, discovered the body of Pyke and contacted the police.

6 The Investigation

The actual investigation was not overly complicated, as Heiss was the stand out suspect from the beginning. Although Heiss was not recorded on any German systems, he was traced to his home address through the AAA, who had returned personal items from the crash and had retained his address details. Officers working CCTV quickly tracked Heiss from Birmingham Airport to Nottingham, through the streets, to the murder scene and back again. The murder scene was not examined until the 18

November 2008, when it was attended by the pathologist and blood spatter experts. It was noted by Scenes of Crime Officers that, as he lay dying, Pyke had tried to write DAVID in blood on his computer monitor, managing to complete a 'D' and an 'A'.

After liaison with Interpol, at 20.30 on 24 September 2008, a European Arrest Warrant was taken out and executed at Heiss' home address. A search of his rooms recovered the blood stained clothing, bags and the fake suicide note, which was also blood stained, suggesting that Heiss had it with him during the attack, took it out to read it and then placed it back in his pocket.

Heiss was arrested at the flat and detained in Germany before being extradited back to the United Kingdom.

Throughout the investigation, the investigation team worked very closely with Hi-Tech crime colleagues who managed to recover vital evidence from the computers. For instance, chat logs sent from Heiss to Witton were recovered and printed off, which ran to over 70,000 pages. They also showed that both Witton and Pyke were actively researching the Harassment Act but had not contacted the police, although the police station was only 50 yards away. It became clear that when back in Germany, Heiss reacted to media reports by looking at Nottingham CCTV and following news reports. In addition to that, Hi-Tech crime colleagues managed to recover the two documents entitled 'CONFESSION' and 'I MADE A DECISION', revealing that Heiss had created both, but more importantly, the time they were created. This proved to be a vital piece of evidence at the trial.

Heiss made some limited admissions (effectively to self defence) and was tried at Nottingham Crown Court on 10 May 2009. As key witnesses, all key members of Wars Central attended and gave evidence against Heiss. It was interesting how remarkably similar these people were in dress and appearance although many had never physically met before. Heiss was found guilty and sentenced to life imprisonment with a recommendation to serve at least eighteen years.

7 Lessons Learned

A number of the lessons learned from this investigation are summarised below:

- Media at home – The media created difficulties with spurious stories about the murder, thus having an impact on the local community. For example, the inaccurate references to Heiss as a student incensed the local student community. An option for the future may be to consider a sensitive closed media briefing, but this has its own risks.

- Media in Germany – The fact that the German authorities gave out huge amounts of detail to the media proved on occasions to be the earliest source of information available to the investigation team. The German authorities did not update the team on any proceedings, including hearings and the actual extradition, and much of the information needed was gleaned from media releases.
- International Letters of Request (ILOR) – It is difficult to get ILORs actioned abroad. All requests for such actions have to go from prosecutor to prosecutor. The SIO had to draw up numerous ILORs and send them to the local Crown Prosecution Service (CPS) who, in turn, had to send it to their German counterparts, who in turn, passed it on to the local police. This proved very cumbersome and time consuming.
- Hi-tech crime expertise – The use of Hi-Tech crime expertise is invaluable when dealing with Internet based investigations. Their recovery of information not only gave the investigation team an invaluable insight into the background of this case, but provided vital evidence to counter Heiss’ claim of self defence. Any similar enquiry in the future should set out early strategies to recover and analyse computer data and then set clear parameters about what to look at. The potential for huge amounts of information to be viewed is significant but, by targeting certain aspects, evidential information will be generated in a more timely fashion. Utilise people who know their way around the arena in question (eg, gaming websites).
- Liaison with the Serious Organised Crime Agency (SOCA) – Early liaison with SOCA when pursuing people abroad is key. Their advice is vital and they have officers spread throughout the world who can assist in many ways. Nothing will get done without them liaising on your behalf with the local police.
- Extradition planning – The planning of extradition proceedings and the need to create good relationships with colleagues in a foreign country is invaluable. During the investigation, the team were able to use the skills of a German-speaking Detective Constable who was able to facilitate good relations with German colleagues. This was particularly useful as it assisted in overcoming some of the bureaucracy and red tape that are inevitable in such cases.

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Social Networking as an Intelligence/Investigative Tool: Case study

Detective Inspector Nigel Niven
Murder Investigation, Royal Virgin Islands Police Force

Detective Sergeant Ray Massie
Major Crime Department, Hampshire Constabulary

Abstract

In March 2009, a murder occurred in the British Virgin Islands and was investigated by the Royal Virgin Islands Police Force. The suspect fled the Island of Tortola soon after the murder to a country unknown. It was later established that the suspect was using a social networking site. To maximise the investigative opportunity this presented, the SIO enlisted expertise from the Hampshire Constabulary to locate the suspect.

This article outlines the background to the investigation and how the tactic was used to identify in what country the suspect was located and other key information. The tactic itself has some considerable ongoing potential. The use of social networking sites is an everyday occurrence and they are used by huge numbers of people, which will include those wanted by police. If investigators establish that the person of interest is using a social networking site, then it may well be possible to trace that person to a particular country, if not a specific address in that country.

Nigel Niven is a Detective Inspector (Murder Investigation) in the Royal Virgin Islands Police Force. He is a PIP3 Accredited SIO and was the first to be recredited as an SIO while serving with a non-UK police force. Prior to joining the RVIPF, he was an SIO with the Hampshire Constabulary Major Crime Department.

Ray Massie is a Detective Sergeant in the Hampshire Constabulary Major Crime Department. A detective for the last eighteen years across many areas of criminal investigation, he also has a background in Hi-Tech investigation and lectures in related matters with the NPJA.

Contents

1. Background.....	35
2. Written Brief from Enquiry Team.....	35
3. Open Source Research – Methodology	36
4. Explanation of Terms Used	37
5. Royal Virgin Islands Police Force Case – Open source research	38
6. Data requests and product	41
7. Summary – Investigators’ guide	43
8. Conclusion.....	44

All correspondence should be addressed to:
ray.massie@hampshire.pnn.police.uk
nigelniven@msn.com

1 Background

In the early hours of Sunday 1 March 2009, a man was shot and killed outside a nightclub on the Caribbean island of Tortola in the British Virgin Islands (BVI). A suspect was readily identified by eyewitnesses and the incident was also captured on good quality CCTV. Within hours of the murder, the suspect had fled the island and the jurisdiction of the Royal Virgin Islands Police Force (RVIPF). Although the suspect was resident in the BVI, he was a native of St Vincent who had spent his formative years growing up in Trinidad. While the conventional homicide investigation continued, other areas of intelligence were being developed. The emerging intelligence picture suggested that the suspect had travelled to Trinidad where he had close family connections or alternatively was hiding out in St Vincent.

The enquiry team established that the suspect was currently using a popular social networking site in the region called Tagged. The Senior Investigating Officer (SIO) sought to maximise the investigative opportunity this presented by approaching Detective Sergeant Ray Massie of the Hampshire Constabulary in the UK. The SIO was aware of DS Massie's work in developing 'Open Source Intelligence' and his collaborative work with the National Policing Improvement Agency.

In simple terms, the SIO wanted to establish what country the suspect was accessing his Tagged account from and any other information that may assist the investigation team.

2 Written Brief from Enquiry Team

The first stage of any open source work is for the enquiry team to provide the investigator with a written briefing. It may be that a summary of the case is provided, antecedent details or details of associates. Each case is different and the level of information provided is something that is determined by the SIO. When an Open Source Investigator (OSI) is part of the commissioning organisation, they normally have access to the closed police intelligence and information systems. In these circumstances, the OSI is able to fill in any gaps about what is known by completing their own research. In this particular case, the OSI was not part of the existing investigative structure. The written brief in this instance was limited but adequate and contained the information known and what was sought from the OSI.

3 Open Source Research - Methodology

As there was no access to closed intelligence and information systems in this case, all research was carried out by the OSI using freely available resources on the internet. All research was non-intrusive and from behind a stand alone computer. Using a police-networked computer leaves an electronic 'footprint', ie, its IP address, which can easily be resolved by a subject with limited technical knowledge. All searches and social networking profiles created to look at the named suspect's pages were themselves created using pseudonyms. A pseudonym is used as a name to create a social network profile, again to mask police interest. A software application was used which allowed the pseudonym accounts to be set up and then used anonymously by the OSI. This masked the Internet Protocol (IP) address of the computer being used to conduct the research.

3.1 Record keeping

To comply with the ACPO Principles of Computer-Based Electronic Evidence, detailed, contemporaneous written notes were kept of all work, showing dates, start and end times of all work undertaken. It set out the tools used, sites visited and any results. It also showed the storage path where any electronic material captured was itself located.

3.2 Electronic work

The OSI set up a master folder on the research computer where all captured electronic work could be placed. This was further organised by the OSI using sub-folders as appropriate. A still capture tool was used to take screenshots as required. Embedded into that screen capture was the date and time which was cross-referenced in the written notes. At the conclusion of the research, all electronic work was placed in a folder and authenticated using a hashing algorithm. This method of authentication is commonly used in computer forensics. The MD5 and SHA-1 algorithms were used. The result was recorded and retained in the written and electronic notes. A master and working copy of the electronic work was created. This method of authentication demonstrates that the information collected can be relied upon in any future proceedings. It also demonstrates that it has not been altered in any way since the OSI created it.

3.3 ACPO Guide to Computer-Based Electronic Evidence

Principle 3 of the ACPO principles of computer-based electronic evidence states that an audit trail or other record of all processes applied to computer based electronic evidence should be created and preserved. An independent third party should be able to examine those processes and achieve the same result.

3.4 NPJA training for Open Source Investigators

The NPJA runs a Researching, Identifying and Tracing the Electronic Suspect course (RITES). This course is designed for people who use the internet as part of their investigations. Students learn how to access and interpret open source information on the internet, as well as how to protect their integrity and the legal implications of their actions. Other commercial training providers also exist for open source research.

4 Explanation of Terms Used

4.1 Social network services and user's profile

A social network service is essentially a website where you will find an online representation of each user, known as the user's profile. Profile pages can also be created for groups. By default, the site will steer you towards being part of a network, like London or South East England. A person will sign up to a social network service which is usually free. Having agreed with the site's end user license agreement (EULA), they create an online profile. This is populated with personal information, which users are encouraged to fill in. The site provides the means for users to interact and communicate over the internet, usually restricting that communication to within their site. These methods of communication exist outside social networking sites in their own right, such as email, instant messaging, picture sharing or sharing of music or video clips. Profiles also have 'built in' web logs, more commonly known as a 'blog', where users post their status and what they are doing. Many of the social networking sites used worldwide, have these facilities built in, for example, Facebook, Twitter, Bebo and MySpace.

Popularity of individual sites also differs from country to country. Profiles can be open to all or have privacy settings so that only persons or groups known to the user can see their information. By default, many of the settings are more open and users have to secure their profiles themselves. This was the subject of negative publicity in the UK in 2010 for Facebook.

Being websites, a user can access their profile or their friends' profiles from anywhere in the world where that user has access to the internet. This may be via a computer at home, work or in an internet café, or via a smart mobile phone.

4.2 Internet Protocol (IP) addresses

This is a unique number which identifies a computer or other device's location on the internet. Internet Service Providers (ISPs) allocate IP addresses to their customers. All devices connecting to the internet have an IP address.

4.3 Internet Service Providers (ISPs)

An internet service provider (ISP) is a company that provides its customers, who may be individuals or other companies, with access to the Internet. The ISP connects its customers using the appropriate technology to the internet. Each time a customer connects to the internet, the ISP allocates an IP address for that connection. They charge for this service and hold records of their customers. This will include the IP address allocated to that customer at any particular date and time. When requesting data, it is important to make sure that you include the time zone, as ISPs may be located in a different country or just operate on a different time zone. ISPs may provide other services like email accounts, which allow their customers to communicate with one another by sending and receiving electronic messages through their ISP's server. It follows that they also hold email records for those customers. Regional ISPs can themselves be customers of national or international ISPs. Resolving an IP address will result in identifying the ISP. See **7 Summary – Investigators' guide**.

5 Royal Virgin Islands Police Force Case – Open source research

5.1 Internet research

A straightforward word search using the Google search engine and the search terms – suspect's name, murder, Virgin Islands – showed up a number of results. Amongst these were local reports of the murder in newspapers. Looking through the online editions of the newspaper BVI Platinum News, the OSI was able to build up a picture of the crime and noted the names of persons referred to in the articles.

Most interesting were the comments on the newspapers web log or 'blog', where members of the public posted entries. A person called 'Shaniqua' tried to defend the suspect's actions on this blog, which caused hostile responses from other posters on that thread. There was also reference to him communicating with people on the Virgin Islands from a social networking site called Hi5.

The OSI, from behind a proxy programme, joined both the Tagged and Hi5 social networking sites using pseudonyms. User profiles were created that allowed the sites to be viewed and searched from within. The proxy software application was used so that the pseudonym user accounts could be created and used to search anonymously. The proxy masks the IP address of the OSI's computer and in this case the IP addresses, if checked, would come back to different countries. In order to protect the detailed methodology of this tactic, only a summary of the information gleaned from these sites is listed. Any SIO or OSI can contact DS Massie for a more detailed explanation of this aspect of the case

5.2 Suspect profile on Tagged social networking site

Tagged is an American company that had, at the time of the research, 70 million users worldwide. They have been in existence since 2003. Local knowledge from the enquiry team showed that this was the social networking site of choice in the Caribbean, much like Facebook is in the UK in 2010. A review of their privacy policy and their terms and conditions showed that users, by agreeing to have a user profile on the Tagged social network site, gave their consent to Tagged disclosing any of their personal information posted on the site and by agreeing to the end user licence agreement (EULA) they understood that Tagged would co-operate with law enforcement, should the appropriate request be made. In practice this turned out to require a court order. In this case, the orders were obtained under Section 272 M of the Criminal Code, 1977, as amended by the Criminal Code (Amendment) Act, 2007, of the Laws of the Virgin Islands. The SIO obtained a detailed briefing note from the OSI and was able to assist the court with relevant information such as technical lexicon. The SIO also enlisted support from the Director of Public Prosecutions (DPP) office and a DPP lawyer accompanied the SIO when the court order was obtained. The DPP lawyer was able to fully brief the magistrate on issues of law, thus making the process more straightforward. Users of other social networking sites and web-based email providers like Microsoft sign up to similar end-user licence agreements which users agree to, by accepting the 'I agree' option without reading the full text.

The following information was obtained, analysed and used to progress the investigation.

1. Each day the named user's profile displayed when the user last accessed it (in hours or days).
2. Each day the named user's profile displayed the number of persons who had viewed the profile. Investigators need to be mindful that friends, family, journalists or police could be doing this. The user himself may notice the count going up and be alerted. It could be that the user is adding to the count by accessing the profile, although not posting any information. The user could be using his profile to communicate using the instant message/chat or email function that is within Tagged to keep in touch with other users. These functions exist within the Tagged social networking site like many others and as well as posting material for all to see (a blog) the user can email or chat with other users.
3. Monitoring the site over a number of weeks showed that the intelligence on the Virgin Islands was indeed correct and that that the suspect was accessing the site and had done so regularly since the murder.
4. The 'friends' of the user were shown on the site and their profiles were also accessed and researched. The suspect had 363 listed 'friends'.
5. There were comments on the user's profile blog' which were dated and timed from named 'friends'.
6. Material viewed by the OSI was copied electronically and analysed in slow time. Such material can be used for intelligence purposes or used as evidence if appropriate. In other cases DS Massie has been involved in, material captured that was subsequently deleted by the user was used evidentially.
7. The server hosting the Tagged social networking site was hosted in the UK. Resolving the IP address, using freely available tools on the internet, revealed the details of the service provider. They stated that they were unable to provide login IP addresses of users but did provide points of contact for their customer, Tagged.
8. Law enforcement points of contact in the United States were then obtained, including telephone numbers and email addresses. Tagged has a law enforcement policy which sets out what they will provide and how law enforcement can go about obtaining it. These policies can differ between

companies and single points of contact (SPOCs) should familiarise themselves with what each company will provide to law enforcement. Some only provide contact but will not supply content.

9. Contact was made with Tagged and the IP addresses that the named user logged on to his profile from, were requested. Resolving those IP addresses led to an ISP. The ISP was based in the US Virgin Islands and not St Vincent or Trinidad as had previously been thought. Investigators need to be mindful that this result could lead to an internet café, business or domestic customer. In any event, it should provide a line of enquiry that can be progressed by traditional policing methods. Human nature being what it is, people are generally creatures of habit and a list of log on IP addresses can be quite revealing.
10. Account details of the customer whose computer was being used to access the named suspect's profile were formally requested from the ISP on the US Virgin Islands. (See **6 Data Requests and Product**)

5.3 Hi5 Social Networking Site – Named suspect had a profile

This profile was identified from reading the threads on the BVI Platinum news blog. Hi5 is a San Francisco based social networking site and was ranked number two in Jamaica, Honduras and the Dominican Republic at the time of the research. As of December 2006, Hi5 claimed to have 50 million registered users. The suspect was accessing his profile on this site and had done so since the murder.

Similar information was gleaned from this social networking site to that found on Tagged. In addition, the suspect used this profile less and had a smaller number of 'friends'. Cross-checking the two profiles proved useful. Additional information was obtained, analysed and used to progress the investigation.

6 Data Requests and Product

In the UK, responsibility for obtaining data within the Police Service usually falls to communication intelligence units or similar, with the SPOCs gatekeeping or even completing requests for officers. Agreed protocols exist between UK law enforcement and the communication service providers which include telecommunications as well as internet communication. Requests in the UK are made under the Regulation of Investigatory Powers Act 2000.

6.1 RVIPF Case

There were no established units in the BVI to undertake these requests. DS Massie acted as their technical adviser and the investigation team applied for court orders which were issued by their courts. It is worthy of note that both the social networking sites and the ISPs, who were all based in the United States, were content to submit to court orders secured in the BVI. To comply with US legislation, they needed a legitimate court order to disclose the requested information. There was no issue for them where the court order was secured.

6.2 Tagged – Requesting private information

To request private (non-public) information from Tagged about a specific profile or user, they required a subpoena, search warrant or other legal process. The following list is private content that is not publicly accessible. Some content is provided by the users themselves upon registration when updating profiles. Other items are collected by the site automatically or involve communications on Tagged.

Text Box 1

Tagged – Product that can be obtained with a court order/search warrant

- IP logs (recorded at time of login)
- Date profile created
- Dates and times of login (PST)
- Zip code provided by user
- Name provided by user
- Private messages

Note: Information provided by the user may not necessarily be accurate. Users do not need to confirm their email address, nor is this information verified by Tagged. Computer savvy users may fake IP addresses if they use a proxy server.

In the event that the suspect is using a Microsoft account, (eg, Hotmail, MSN, Live) the same process can be followed by asking for the above information within the court order/search warrant. Microsoft may also be aware of additional information peculiar to their products, for example, other linked email accounts or usernames, buddy lists and, in the case of Hotmail, the user's address book.

When obtaining any order to serve on Microsoft or, in the UK, any application under RIPA 2000, you must specify what information you want them to provide. Remember if you don't ask, you don't get.

7 Summary – Investigators' guide

Step 1

Where possible, use only trained OSIs. This increases your chance of success and ensures that the product delivered is more likely to stand up to scrutiny during legal proceedings. In any event, ensure that records are kept and any material captured is retained in such a manner that it can be used not only for intelligence purposes but evidentially, if necessary. The methodology is described above.

Step 2

Establish through intelligence or open source research the existence of a suspect using a social networking site. Identify any email addresses or usernames, like those used in chat. These will be useful for searching for and within social networking sites. Do not forget traditional police methods, by asking witnesses or associates for this information.

Step 3

Obtain and submit a court order or RIPA 2000 authority to the company hosting the social networking site. Examine their EULA to see what information they will provide to law enforcement. They are different. Some will give more information than others. Tagged provided private messages (content), however, Microsoft will not. The minimum you need is to obtain the IP address of the computer that the profile user is logging on from, to his/her profile. This information is captured automatically by the servers of the company who run the social networking site. Resolve this IP address and you identify an ISP. There are free tools for doing this on the internet, for example, centralops.net or SamSpade.org.

Step 4

Having identified the ISP, you can then obtain and submit a court order or RIPA 2000 authority to the ISP. You can request the customer account details from them. You need to provide them with the IP addresses, date, time and time zone

that you obtained at Step 3 previously. The ISP will return to you the customer details that they allocated that particular IP address to at the relevant date and time. Remember, it could only lead to an internet café, business or domestic customer. In these circumstances, traditional policing methods need to be used.

8 Conclusion

By employing the above tactic, the OSI was able to establish key information for the SIO. Most crucial was identifying what country the suspect was accessing his social networking site from and, through subsequent analysis of the ‘chat’ records, a mobile phone number. Via conventional telephonic work, the SIO was able to identify the actual mobile phone being used by the suspect. In September 2009, the suspect was arrested in the US Virgin Islands as a result of a joint RVIPF and US Marshall Service covert operation.

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Injury Photography: Is it more than skin deep?

Nicholas Marsh
Evidence Recovery Unit, SERIS

Abstract

This article has been written to share the experiences of the Metropolitan Police Service Evidence Recovery Unit (ERU) in the use of specialist photography for the detection, enhancement and accurate recording of injuries, for interpretation or later comparison work. This casework can play an important role during an enquiry, and in our experience has often been key to a successful judicial outcome. In particular, it will look more closely at cross-polarised illumination as a simple solution to a common problem.

Nick Marsh has over twenty-four years experience as a forensic photographer with the Metropolitan Police Service, specialising in scientific and technical photography. He is currently the Consultant Forensic Practitioner in imaging for the ERU, heading a specialist team of photographers. He has been involved in numerous high profile cases within London and abroad, particularly around specialist support to the homicide investigation teams. He is also listed on NPIA's expert database, as an expert in the use of specialist lighting.

Contents

1. Background.....	47
2. Techniques	47
3. Cross-polarised Photography	49
4. Examples of Effective Use of the Cross-polarisation Technique in Criminal Investigations.....	51
5. Conclusion.....	53

All correspondence should be addressed to:
Nicholas.P.Marsh@met.pnn.police.uk

1 Background

With the advent of digital cameras, the role of the traditional forensic photographer is often seen as less important or, in some cases, unnecessary. It is easy to pick up a camera and just point and shoot and get a usable result, or is it? Is the image captured, which on the surface may appear correctly exposed and in focus, actually useful when it comes to supporting evidence? In other words, does it actually show you what you want to see? An example would be the shape, pattern or outline of the weapon or implement. In the world of injury photography, I would argue that many officers are missing out on the full potential of evidence capture, especially now the specialist photographic knowledge base has decreased.

Officers will often state that they have had, or are going to have, an injury photographed. But the question is how? For a straightforward black eye, a simple flash photograph may be all that is required. However, for a bite, burn, welt, pattern or trauma type injury, it is highly probable that other techniques will capture far more than conventional photography can. This is no criticism of the officer, or the photographer, as flash is often all that is available. But with cases such as Baby 'P'¹ appearing frequently in the press, I will take a brief look at other techniques which warrant going the extra mile and, in particular, the use of cross-polarised photography.

2 Techniques

2.1 A standard colour reference

As mentioned earlier, this is often the only photograph taken. This photograph's critical role cannot be underplayed and the quality of this control or reference image is all important. In my experience, and that of the National Injuries Database (NID), a poor quality photograph can hinder a case or even lose one, especially if the area of the injury is not accurately illuminated or represented. This is particularly important if the image is required by external experts, to undertake physical fits, comparisons or other casework. The injuries must be clearly and accurately scaled and colour balanced. A reference photograph is always taken of any injury.

¹Baby 'P', or Peter Connelly, was an English 17-month-old boy who died after suffering more than 50 injuries over an 8 month period.

2.2 Cross-polarised photography

As the name suggests, this type of photography requires the light hitting the camera to be cross-polarised. The result is a colour saturated image that shows reduced or non-existent sheen on the skin and enhanced pigmentation, which in turn maximises detail. This type of photography can be used for any type of injury, but is particularly good for the following applications: bite marks, burns, injury enhancement, implement marks, strangulation marks, general bruising and even gross specimen photography.

2.3 Reflected ultraviolet (UV)

The use of reflected ultraviolet light is a much more specialised technique and, as the name suggests, records the ultraviolet light reflected from the skin. Ultraviolet is the area of the electromagnetic spectrum lying below 400 nanometres (nm); this area is beyond what the human eye can see or normal photographic camera sensors can detect, so specialist imaging equipment is required.

In practice, the UV spectrum used is between 320 and 400 nm. At these wavelengths, many substances absorb or reflect in a completely different way than they would under visible light. For example, a jet black surface may reflect the UV back and it would appear white in the captured image. Differences in skin tone, colour or pigmentation, which may appear slight in visible light, may become very clear under reflected UV, such as freckles. Additionally, UV at this wavelength has virtually no penetration of the skin, so there is no scattering of the light. This in turn can lead to much sharper images. This means that surface damage is more easily seen. The downside of this technique is that no guarantees can be given; results are variable and rely on the person's skin tone and healing speed.

This technique can be particularly useful for the visualisation of sites of previous trauma injuries, such as bites, burns or patterned injuries caused by implements. It can also be used to remove bruising which may be masking an injury.

2.4 Induced fluorescence

Fluorescence is the emission of light from the subject at a longer wavelength than the light impacting on it. High energy radiation such as UV causes electrons in the subject's atoms to be raised to higher energy orbits. When the electrons slip back to their normal energy state they release energy in the form of light. In a darkened room, the photographer will expose the injury to a narrow band excitation

wavelength, for example 420 nm. The light will pass both into the skin's surface and reflect off of it, thus producing visible fluorescence. This fluorescence can be viewed using a long pass filter. In reality this means that many injuries take on different fluorescent characteristics to the surrounding skin tissue, thus raising the contrast and allowing it to be seen more clearly.

This type of photography can be used for general bruising and trauma type injuries.

2.5 Infrared (IR)

Infrared is the area of the electromagnetic spectrum that lies beyond red in the electromagnetic spectrum (700 nm to 300 micrometers). Again this region is invisible to the human eye and for photography; in reality it is limited to a maximum of around 1200 nm, dependent on the camera sensor type (adapted cameras are commercially available or can be adapted by the user by the removal of the 'hot mirror'). Infrared has long been used by the medical world because of two major benefits. First, it penetrates the superficial layers of the epidermis and reveals the structures beneath; second, the reflection and absorption characteristics differ from the visible spectrum. Venous blood absorbs IR heavily, whereas oxygenated blood reflects IR, thus vascular disorders such as varicose veins can clearly be seen. However, although it can penetrate the superficial layers, it still has a limited penetration depth. Only the superficial veins can be clearly seen and unfortunately bruising tends to be at greater depth. Although in my personal experience it is of limited value for general bruising, it is worth using as a last resort for trauma type injuries.

In the case of the last two, induced fluorescence and infrared, there are numerous wavelengths and filter combinations that can be utilised, each giving subtly different results dependant on the equipment used. Each of the above techniques has its merits and, in some cases, all five might be deployed, but in this article, I want to look more closely at one of these techniques: cross-polarised illumination.

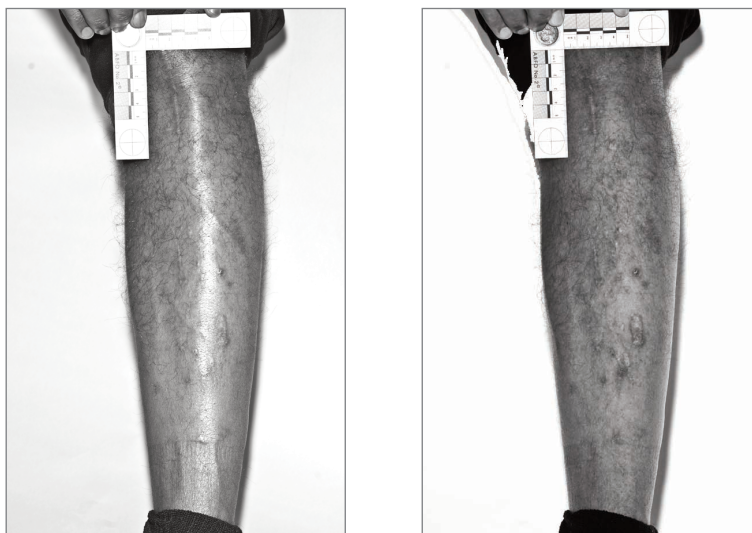
3 Cross-polarised Photography

The accurate recording of bruising and injuries can play an important part in forensic casework, for example non-accidental injuries for child protection teams and in murder investigations.

Bruises are caused by an impact that ruptures and haemorrhages the blood vessels within the skin without creating a wound. Vessels often bleed for some time and bruises develop over a twenty-four to forty-eight-hour window. The immediate reaction of the injured tissue is acute inflammation, and colour change is partly caused by the haemoglobin breakdown and partly by chromophore transport through the skin. The bruise then passes through a number of colour changes as it ages.

Conventionally, injury photography is undertaken using flash or studio lighting. However, this only reveals the injury or bruise as it would look to the human eye and is susceptible to reflectance or glare from the skin surface, particularly around areas of scabbing or healing. We have found that, by using cross-polarised light, it is possible to remove these unwanted highlights and reveal information within the injury that would otherwise be lost.

Figure 1 Images showing difference between traditional (left) and cross-polarised (right) photography



The use of polarised light is well known and widely used in scientific and medical photography, to eliminate unwanted reflections and increase colour saturation of pathological specimens, and its use is documented as far back as Olaf Bloch's *Criminal Investigations and Evidence by Photography* (1936).

It has been noted for a long time that the photography of injuries and internal organs leads to the recording of bright reflections from the flashlight becoming

prominent. These often obscure the areas of interest. It is particularly noticeable at post mortems, due to the skin being moist owing to excretion of oils and natural condensation when brought out of the fridge. It should also be noted that the colour saturation of these areas also suffers with skin taking on a waxy, bleached out look.

The behaviour of light in materials is governed by Snell's Law. This affects the ability of the subject to absorb and refract light waves. In terms of photography, most light around us is unpolarised light, however, every photon of light is polarised in some manner. Unpolarised light is just a random mixture of light at all polarisations. Light waves in which the vibrations occur in a single plane are said to be polarised.

Light reflected from skin has two components, regular reflectance or 'glistening' caused by moisture and oils on the skin surface and backscattering from within the tissue. The regular reflectance contains the visual cues to the skin's surface texture, whereas the backscattering components contain the cues related to pigmentation, blood vessels and intracutaneous structures. It is, therefore, possible to deliberately polarise the light waves hitting a target and, by utilising a perpendicular polarising filter, remove any unwanted reflections from our target, allowing us to see the skin structure with greater clarity, with surface detail disappearing and revealing an enhanced view of the vascular and pigmentation information. See **Figure 1**.

For a professional photographer, carrying a polarising filter in their camera bag is essential. This will be used in daily photography either to remove unwanted reflections, from such surfaces as glass, or to increase the saturation of colour. This technique can be used on nearly all types of injury. However, as the number of forensic photographers in many forces has declined over the years, so too has the use of polarising filters.

4 Examples of Effective Use of the Cross-polarisation Technique in Criminal Investigations

Cross-polarised illumination is now a standard technique used by the specialist photographers across the Metropolitan Police. Generally it is used at post-mortems to remove surface interference and for the enhancement of certain injury types. The following two cases illustrate the benefits of the use of cross-polarised illumination.

The first example is a non-accidental injuries case dealt with by a Child Protection Team (CPT), in which a two-year-old child appeared to have been repeatedly burned using an unknown implement. This had apparently happened over a period of time, so some injuries were at the blistering or scabbing stage, and others had faded to the point of almost being invisible. The areas were photographed conventionally, but this revealed no further information other than what was visible to the naked eye. However, when photographed using cross-polarised illumination, a small horseshoe shape could be defined and was subsequently found on at least four different locations of the body. Using the experience of the photographer and the CPT team, it was possible to identify the potential implement as being a Bic type cigarette lighter.

The cross-polarised photographs allowed a comparison to be carried out against seven cigarette lighters retrieved from the premises. After these comparisons, one lighter was identified as being the right size and shape to be a physical fit to the horseshoe-shaped injury. To assist at court, all the images along with acetate overlays of the lighters were printed at twice life size (to allow minutiae to be seen more easily). This assisted the CPT and the specialist burns doctor in the presentation of their evidence. The case resulted in a successful prosecution.

The second example relates to the victim in a murder enquiry. The ERU were asked to attend a mortuary and carry out a specialist body examination using various light sources. During this examination, using ultraviolet, a small area of interest was found on the deceased's cheek area. This consisted of what appeared at the time to be no more than a number of interacting lines and a circle. This area was photographed not only with cross-polarised illumination, but also induced fluorescence. Sometime later during the investigation, a number of suspect's shoes were submitted to the ERU for further investigation. The photographs of the mark on the cheek were compared to the soles of the submitted shoes. Although the soles of the shoes showed no possible comparison match, the ERU scientist noticed that the pattern on the cheek bore a close resemblance to the stitching and lace hole arrangement on the uppers of one of the pairs of shoes. The induced fluorescence photographs showed the pattern on the cheek quite well, but they suffered from background auto-fluorescence which interfered with the minutiae quality. However, in this case, the cross-polarised photographs clearly showed the stitching and the outline of the lace hole. Acetate overlays were made of the shoes and this allowed the scientist to physically fit the upper to the facial injury. However, more importantly, during the trial, the ERU scientist was able to disprove the defence allegation, that any injury inflicted was in self defence. This was

because the position of the marks was such that the only way they could have been caused by the uppers was if the suspect was standing by the victim's head, using it as a football. This again led to a successful prosecution.

5 Conclusion

In all the techniques here, some form of visual cue is required to determine the area to photograph, but these techniques allow areas that may be nearly invisible to be enhanced.

The use of cross-polarised photography requires minimal outlay for the highest possible return. It is cheap, relatively quick and offers instant results. It is non-intrusive and can be used equally on a living victim or for the enhancement of injuries at a post-mortem. It is adaptable and can be used on virtually any camera, including small pocket types. However, if it is used to record injuries, it must always be accompanied with a reference photograph.

Points to consider for those using the cross-polarisation technique include:

- One factor of importance is the use of neutral forensic rulers. When in frame, they act as a guide to the colour, temperature and exposure.
- The use of brightly coloured backgrounds should be avoided as these can reflect colour casts onto any item close to them. Ideally a grey cloth or a portable backdrop, such as a Lastolite, should be used, as this can be carried with the photographer and offers a neutral backdrop regardless of location (Lastolite backgrounds are available in various sizes and colours and are easily obtained from any photographic dealer).

Full details and photographs on how to cross-polarise your camera equipment will be published later this year on the NPIA website.

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Sources of Information

The following websites provide examples of the types of equipment mentioned within this article for the interest of readers.

Crimescope (Manufacturer of Forensic Lighting and RUVIS camera)
<http://www.Crimescope.com>

Lastolite (Manufacturer of backgrounds and lighting control systems)
<http://www.lastolite.com>

Labino (Manufacturer of lighting) <http://www.labino.com>



UPDATE... UPDATE... UPDATE... UPDATE...

One of the core responsibilities of NABIS is the tracing of firearms that have been used in crime both within the UK and internationally. Firearms tracing is important because by understanding where firearms were originally purchased it is often possible to follow the supply chain from the original purchaser to the end user of a firearm. By identifying these supply chains we are able to restrict the supply of illegal firearms into, and within the UK and prosecute those involved in the supply networks.

Firearms Tracing

Over the last few months there have been a couple of examples where guns have been recovered from active criminals in the UK. NABIS has been able to use its contacts with the Bureau of Alcohol, Tobacco and Firearms (ATF) in the USA to trace the original purchaser of these weapons in the USA and make enquiries which revealed that the purchaser had bought a large number of other firearms in addition to those that had been recovered.

These newly identified firearms had also been supplied to the UK and it was possible to arrest those individuals involved in the USA, as well as identify and recover a number of other firearms in the UK which we previously had no idea existed.

This type of work has the potential to make a real difference by taking out key

criminals at every stage of the supply chain. NABIS has a memorandum of understanding with the ATF that allows us to utilise their eTrace database, which means that we are able to carry out fast time tracing checks on any firearm originating from the USA. NABIS are also able to carry out firearms tracing enquiries anywhere in the world.

NABIS will make every effort to forensically identify and trace all firearms submitted to our hubs, so please ensure that you take every opportunity to submit all recovered firearms and ammunition that fall within the NABIS submission criteria.

All firearms tracing requests nationally should be submitted through the NABIS intelligence cell. If you have any queries regarding firearms tracing, please get in contact with the NABIS team who will be pleased to assist.

Baikal Problem Profile

Russian Baikal IZH-79 pistols are the most commonly used firearm in UK criminality. The NABIS Intelligence Cell has produced an assessment regarding the scale, pattern and nature of use of converted Baikal pistols in the UK on behalf of ACPO Criminal Use of Firearms (CUF).

NABIS identified fourteen recommendations to drive forward targeted operational activity to eradicate the use of converted Baikal pistols by criminals in the UK. These recommendations have been enforced by the ACPO CUF Steering Group and Practitioners' Group and activity to address these recommendations will be led by the Serious Organised Crime Agency (SOCA) with the assistance of NABIS.

Criminal Use of Shotguns Problem Profile

The NABIS Intelligence Cell has also undertaken a similar problem profile on the criminal use of shotguns within the UK following an increasing trend in the use of shotguns in crime and incidents of shotgun thefts. This will be presented to the ACPO CUF Practitioners' and Steering Group with recommendations for action.

Inferred Firearms

NABIS continues to build an intelligence picture in relation to firearms that are in criminal possession. Firearms currently in circulation but not yet recovered are created on the NABIS database as 'inferred firearms'.

The number of inferred firearms in each force area has been produced and disseminated to the relevant forces with the Quarterly Intelligence Cell Bulletin. Information on inferred firearms enables forces to have an understanding of firearms that are active in their area and carry out proactive action to recover them.

The NABIS Intelligence Cell will be undertaking further work in relation to inferred firearms which will be categorised as:

1. Active – used in the last 12 months;
2. Inactive – not used in the last 12 months;
3. Intelligence based – where there is no ballistic intelligence but intelligence suggests a weapon is potentially in criminal hands as a result of illegal importation, manufacture or conversion.

Total Number of Submissions to NABIS Hubs from April 2009–March 2010

- 2,518 ballistic items were submitted to the NABIS hubs in 2009-10.

Ballistic Links

205 ballistic links were identified within 17 forces, the majority of which were within the Metropolitan Police area followed by West Midlands Police, Greater Manchester Police and Merseyside Police.

Forensic Results

In the most urgent of cases forensic results have been delivered within forty-eight hours of ballistic items arriving at the NABIS hub.

Set targets are also being achieved for five-day submissions.

Bruni Olympic 38 BBM Amnesty

The criminal use of converted Bruni Olympic 38 BBM revolvers was first brought to the attention of ACPO CUF by the Metropolitan Police Service (MPS) in 2009. Analysis by NABIS showed that 179 converted Bruni Olympic 38 BBM revolvers were recovered by police forces in England and Wales between January 2007 and March 2010, 157 of which were recovered from the MPS force area.

After consultation with the Metropolitan Police Service, ACPO CUF working in conjunction with NABIS purchased two Bruni Olympic 38 BBM Blank Firing Revolvers in December 2009, which were submitted for testing and evaluation by

the Forensic Science Service (FSS). The focus of this testing was to establish if these items would fall under the definition of 'readily convertible' as per the Firearms Act 1982. In February 2010, a statement was received from the FSS stating that it was their view that the items tested would fall under the definition of 'readily convertible'.

Based on the evidence received from the FSS and the associated intelligence on the nature, scale and use of converted Olympic 38 BBMs, ACPO CUF and NABIS formulated a programme of multi-agency activity to stop the supply of Bruni Olympic 38 BBM Blank Firing Revolvers to the UK, informing the trade, associated organisations and the public of the new classification. The revolver is now subject to the provisions of Section 1 (1a) and also Section 5 (1) of the Firearms Act 1968.

A targeted amnesty ran from 16 April 2010 to 4 June 2010 to allow current legitimate owners to voluntarily surrender their items without being criminalised. Information packs were distributed to forces and agencies and a dedicated email account was set up to deal with any enquiries.

The amnesty received positive media coverage and has been a success, with 529¹ Bruni Olympic 38 BBM revolvers being surrendered during the amnesty and recorded on the NABIS database.

¹As at 26 August 2010.

A debrief has been carried out to capture good practice and learning for any future amnesty.

Investigation Anonymity Order Briefing Paper

A briefing paper that summarises the conditions and process for making an Investigation Anonymity Order (IAO) and which highlights the importance of the national review that is being

coordinated by ACPO CUF, which will inform the report on the use and provisions of IAOs to be laid before Parliament by 6 April 2012 has been circulated to forces.

The briefing paper is available to download from the Criminal Use of Firearms site on POLKA at

<https://polka.pnn.police.uk/en/Communities/Home/?clubId=111>

The NABIS Team can be contacted on

0845 113 5000 ext **7630 6204**

For further details see **www.nabis.police.uk**

Financial Investigation: SIO considerations

Steve Adcock

Proceeds of Crime Trainer, National Policing Improvement Agency

Abstract

Chapter 7 of 'Extending Our Reach', the Cabinet Office review of Serious and Organised Crime, deals with the application of financial investigation techniques in helping to detect and disrupt more organised criminals and more criminal behaviour, deter more people from engaging in serious organised crime by bringing more organised criminals to justice, and generating financial intelligence to inform more effective intervention tactics and strategies. It provides a clear steer about greater mainstreaming of financial investigation, be it in the application of the powers provided by the Proceeds of Crime Act 2002, money laundering offences or the broader potential it offers, whether applied within a murder investigation or attack on Level 2 Organised Crime Groups.

Steve Adcock completed thirty years police service with Cambridgeshire Constabulary, before joining the Proceeds of Crime Training Team in 2008. As a Detective Sergeant, he headed Cambridge's Financial Investigation Unit from 2002-08, during and before which he worked on and assisted in many murder investigations, previously as a HOLMES statement reader.

Contents

1. Background.....	63
2. Intelligence/Information Gathering – support in real time.....	64
3. Support of Ongoing Investigative Strategies.....	69
4. Evidence in Support of a Prosecution.....	72
5. Civil Recovery.....	73
6. Conclusion.....	74

All correspondence should be addressed to:
steve.adcock@npia.pnn.police.uk

1 Background

The assistance of a Financial Investigator should be considered at the outset of all major investigations, looking beyond those crimes that are merely motivated by financial gain or involve a financially related modus operandi. Financial sources of information can support and impact upon many lines of enquiry that are set in relation to victims, witnesses and crime scenes, as well as the suspects.

Financial data may also assist in giving the investigating officer an early indication of motive, be that driven by personal gain, debt or even financial stress related domestic violence. Early consultation is therefore essential in order to discuss the potential lines of enquiry that may be exploited and enhanced with the assistance of financial data. Clear, focused and unambiguous tasking of the financial investigator is paramount.

A request for a 'financial profile' has to be supported by clear objectives. It can be as simple and immediate as the making of a phone call to a financial institution to verify or support some issue or fact, or can be as extensive as a full financial profile of a victim or suspect which can take several weeks to complete, but is evidentially sound in order to support the criminal investigation.

The Financial Investigator is nationally accredited under the Proceeds of Crime Act 2002 (as amended by the Serious Crime Act 2007), giving them access to the UK's Financial Intelligence Gateway. They will have up-to-date information for accessing the majority of the UK financial institutions, plus a practical working knowledge of the diverse protocols for communication with those individual partners. These institutions include banks and their associated online facilities, building societies, financial loan services, credit card, mortgage and insurance companies.

Text Box 1

Investigating officers had the mobile phone number of a suspect in a major investigation. A check of the subscriber account had revealed that a credit card had been used during the previous month to purchase top-up credit on that mobile phone. Subsequent enquiries with the credit card company immediately returned an up-to-date address for the suspect, which was not previously known to the investigation.

2 Intelligence/Information Gathering – Support in real time

No one can exist in the UK in the long term without leaving some kind of a financial trace behind. It is this often unwitting but traceable ‘financial footprint’ being laid (be it by the victim, suspect or witness) that the financial investigator will look to exploit.

Real time financial data is in many circumstances available to the Investigating Officer. The Financial Investigator is able to make pre-order enquiries of financial institutions by use of the Tournier Rules (Tournier v National Provincial and Union Bank of England (1924) 1 KB 461). These rules permit the financial institution to disclose information to law enforcement in circumstances that may otherwise be considered a breach of contract with their customer.

They may disclose financial data in order to:

- Protect the public;
- Protect their own interests;
- Under compulsion by law;
- With the consent of the owner.

Ultimately it is for the financial institution to ensure that it does not breach customer contracts and not a matter directly for law enforcement agencies as the third party recipients of this data. It is essential, therefore, that the investigating officer is guided by the Financial Investigator as to how this financial intelligence is handled and protected in the early stages of an investigation.

2.1 Fast-track actions

The Financial Investigator has immediate access to the UK’s extensive consumer credit and business information databases. Those products and facilities are continually evolving and being improved, eg, where the full name and address of the subject of the enquiry is not known, partial details can now be entered in order to target them.

Inputting data, such as a partial name and/or address, will retrieve all individuals or businesses that match the criteria entered and, notably, the following can also be input to find associated name and address details:

- Telephone number;
- Credit card details;
- Bank details.

Text Box 2

The suspect in a case of kidnap made ransom demands to the hostage's family using a pay-as-you-go mobile phone number. A wild card search of this number found a match against a previous application for credit. This revealed the identity and address of the suspect, which in turn led to a swift arrest and release of the hostage.

2.2 Victim, offender, location

A 'financial footprint' will often exist prior to, or be created during the course of, or immediately after, a crime is committed. That financial data may, therefore, have been created in one, two or all three areas to the Three Coincidental Elements of Crime:

- Victim
- Offender
- Location

The creation of financial data by both the victim and an offender at a given location may therefore be the crucial element sought within an investigation to corroboratively place individuals together. The laying of a financial footprint by third parties at that same location may also reveal the identity of crucial witnesses to that crime.

2.3 Missing persons

These same fundamental principles can also be used in the likes of critical missing persons enquiries.

From a financial perspective:

- Is there a reason for that person to go missing?
- Were they prepared for a leave of absence?
- Can we track/locate movements by their laying of a financial footprint?
- Are they still alive?

The fact that a financial account is still active does not necessarily mean that it is being used at that time by the authorised account holder.

Text Box 3

Concerned friends had reported an individual missing who had changed their religion and received death threats from their family. As a result, there was real concern about the well being of this individual. The Financial Investigator was able to track the missing person to a foreign jurisdiction, where ATM withdrawals were being made. Although the bank card was being used it could not be ascertained whether it was the missing person who was withdrawing cash from the account. Arrangements were made for photographs at the ATM in question to be forwarded to the investigating team, where it was verified that the missing person was alive and well.

2.4 Family liaison

The issues outlined in **1 Background** illustrate the importance for the SIO in considering a financial strategy/briefing for the Family Liaison Officer. The early collation of financial data relating to a potential victim of crime may prove crucial to an investigation, or more importantly, the actual wellbeing of the victim.

2.5 House to house enquiries

This may present an ideal opportunity to establish an early definitive list of financial outlets within the vicinity of a crime scene. Interrogation of financial data at these locations will place not only witnesses at that scene at the material time, but potentially the victim and/or suspect. During the briefing of house-to-house officers, consideration should, therefore, be given to ensuring that they will be recording this information on visiting premises, eg, noting that the local general store on the corner of the street provides an ATM Link cash dispensing service.

2.6 Surveillance

The potential assistance of financial data to a surveillance operation should not be underestimated. It can provide the SIO with a 'lifestyle picture' of an individual subject, potentially filling gaps in movement that otherwise would require answering by physical surveillance, eg, routine work and leisure activity patterns. This may allow the SIO to direct surveillance to specific times and periods of the day, making best use of available resources.

Text Box 4

An operational team from a police force in the north of England was tasked to undertake surveillance on a suspect. Intelligence reports stated that the suspect was in the London area and it was planned to deploy the surveillance team to that area at considerable cost. A timely enquiry by a Financial Investigator revealed that the suspect had used their cash card in the originating city during the previous day, where the surveillance team were already located. The suspect was subsequently located in that city without the deployment of the surveillance team.

2.7 Suspicious Activity Reports (SARs)

A SAR is an information report submitted directly from the regulated sector to SOCA, reporting on what an institution believes to be suspicious transactions that may amount to money laundering. This valuable source of intelligence is readily available to, and accessible by the Police Service.

They provide intelligence:

- on which to base investigations;
- to assist and develop existing investigations into criminal activity;
- about criminals and their networks;
- to identify criminals with assets obtained from their criminality.

The existence of such tangible information may be of extreme value to the SIO when setting or supporting an investigative strategy, ie, money laundering. This is expanded on later in this section.

Each force will have a policy on how SARs are received, assessed and developed. ACPO and SOCA have jointly issued guidance to forces on the management of SARs, and identified good practice in their management and use at force level.

Money laundering regulations were first introduced in 1994 to ensure the UK's compliance with the European Money Laundering Directives. They have since been amended and expanded to cover a wide range of businesses and professional activities thought to be vulnerable to use by money launderers.

The regulations are designed to help detect, disrupt and deter money laundering and underlying criminal activity. They apply to ‘persons who in the course of a relevant financial business, carried on within the UK, form a business relationship or carry out a one-off transaction’ and represent a clear, enforceable and proportionate response to the risks of money laundering.

The regulations require businesses within the regulated sector to exercise high standards of due diligence and report suspect transactions. This provides law enforcement with a potentially vast pool for intelligence opportunities.

The following businesses now fall within the regulated sector:

- Financial institutions;
- Businesses giving investment advice and financial advisers;
- Money Service Bureau;
- High value dealers, eg, car dealers and jewellers (transactions over €15,000);
- Auditors, external accountants and tax advisers;
- Notaries and the legal profession;
- Casinos, bingo halls and gaming machine suppliers;
- Company formation agents, including trust agencies;
- Real estate agents;
- Safety deposit box companies;
- Bookmakers;
- Alternative banking systems, eg, Hawala Banking (developed in India).

There are many similar parallel remittance systems that exist and operate outside of, or parallel to traditional banking or financial channels. They are favoured as a means of banking by many ethnic groups within the UK. Other similar systems include Hundi (Pakistan), Poey Quan (Thailand) and Fi Ch’ieu (China). Chop, Chit or Flying Money is a system indigenous to China but also used around the world.

3 Supporting Ongoing Investigative Strategies

3.1 Proceeds of Crime Act 2002

Orders and Warrants

Parts 2 and 8 of the Proceeds of Crime Act 2002 provide the Financial Investigator with the legislation to obtain court orders that may be of valuable assistance in a major investigation. They are:

- Production Orders;
- Search and Seizure Warrants;
- Account Monitoring Orders;
- Customer Information Orders (all Part 8);
- Restraint Orders (Part 2).

These orders require the signed authority of a Crown Court judge and, as such, there may well be inherent delays in listing for application. Most importantly, however, it should be noted that these orders are only available in support of a confiscation or money laundering investigation. It may, therefore, restrict the occasions when this effective investigative tool can be used. Advice and guidance should be sought from the Financial Investigator on how the use of this legislation can best be exploited in support of an investigation.

Production Orders

These orders require the person specified as appearing to be in possession or control of the material to produce it to an appropriate officer.

Search and Seizure Warrants

These authorise an appropriate person to enter and search the specified premises, and to seize and retain any material found which is likely to be of substantial value (whether or not by itself) to the investigation. They may be obtained if a production order is not complied with or it would not be appropriate to make a production order because it is not practicable to communicate with any person against whom the production order may be made.

Account Monitoring Orders

These require a financial institution to provide account information on a specified account for a specified period not exceeding ninety days. Information should be provided in a manner and at a time or times stated in the order.

Text Box 5

In support of a surveillance operation, a financial movement on an account may assist in the whereabouts or intentions of a suspect.

Customer Information Orders

These are used when there are reasonable grounds for suspecting that an individual is using financial accounts for criminal purposes, ie, money laundering, at various banks in a particular area and in different names. Such an order allows a notice to be sent to all those banks in the area to ascertain whether that individual holds an account(s) under any of the names provided. Once identified, the financial institution must provide sufficient account information for the investigator to obtain a production order.

Restraint Orders

These prohibit any specified person dealing with any realisable property held. They may be obtained when there is reasonable cause to believe that an alleged offender has benefited from their criminal conduct and a criminal investigation has been started with regard to an offence.

Money Laundering

Part 7 of the Proceeds of Crime Act 2002 provides the investigator with legislation that includes the three current offences relating to money laundering:

- Concealing (s.327);
- Arrangements (s.328);
- Acquisition, Use and Possession (s.329) of criminal property.

These offences are not within the exclusive domain of the Financial Investigator, but they may be able to provide the SIO with advice on their practical application within the investigative strategy.

Text Box 6

An individual running a criminal gang in the London area was identified as being the main suspect for a number of murders across the capital. Various specialist units had been unsuccessful in apprehending and prosecuting either that individual or any other of the gang members, who were involved in offences of violence, drug trafficking and money laundering. The financial investigation identified the main subject's associates and traced properties that the main subject had been purchasing with false information. Together with a family member, this individual was successfully prosecuted for money laundering and all accrued assets confiscated. Subsequently, three members of his gang were also arrested and convicted for attempted murder and drug trafficking.

Cash Seizure

Part 5 of the Proceeds of Crime Act 2002 provides the investigator with legislation that includes the power to seize cash (currently £1,000 or over) if there are reasonable grounds for suspecting that it is recoverable property or intended by any person for use in unlawful conduct. This can often be an effective disruption tool in criminal investigations.

Once the seizure has been made, an application for further detention of the cash must be heard by a magistrates' court or a Justice of the Peace within forty-eight hours (the initial period of forty-eight hours does not include any Saturday or Sunday, Christmas Day, Good Friday or any day that is a Bank Holiday).

Pro-active Drug Trafficking Investigations

Sections 55 and 56 of the Drug Trafficking Act 1994 (order to make material available/authority for search), provide the investigator with the legislation to seek evidence of drug trafficking offences.

3.2 Search of premises

A Financial Investigator or Financial Intelligence Officer should be involved in the search of premises, although this may not always be possible. The support of a Financial Investigator can maximise the evidence gathering potential of the operation and ensure that wider intelligence opportunities are not missed. This is as relevant in the case of both the victim and potential suspect or offender.

Financial information can also have a wider investigative use in providing details of a person's lifestyle and motives. The search of premises may be the one and only opportunity in the investigation to identify and link an individual to specific financial accounts.

There is no single database within the UK that is guaranteed to provide a comprehensive list of all financial accounts that an individual may hold.

3.3 Other considerations in investigative strategies

In principle, every offender leaving the criminal justice system should do so without retaining the benefit of their crime. Therefore, an investigative objective of identifying and recovering the offender's criminal assets needs to be set. This should complement traditional detection and prosecution objectives, and ensure the following opportunities are taken advantage of:

- Obtaining sufficient evidence to successfully prosecute the offender(s) for the offences identified in relation to criminal property, including the use of the Proceeds of Crime Act offences.
- Identifying and seizing or forfeiting any substantial amounts of cash believed to have been derived from criminal activity.
- Invoking the provisions of such Acts as Misuse of Drugs Act 1971 (s.27), Powers of Criminal Courts (Sentencing) Act 2000 (s.143) and Sexual Offences Act 2003 (s.60A), which are designed to enable the use of forfeiture. This is an effective, additional tool for dealing with criminal proceeds to its full extent.
- Confiscating any identified criminal assets after conviction. Confiscation can only be triggered by a conviction for a criminal offence. Opportunities to include cases such as acquisitive crime in the confiscation procedures must, therefore, be identified early in an investigation, so that a specialist Financial Investigator can assess assets for potential confiscation or restraint. This will ensure that assets are protected by restraint orders, or seizure, using PACE 1984 powers or other available powers, eg, Misuse of Drugs Act 1971 (s.23).

4 Evidence in Support of a Prosecution

In circumstances where the absence of a money laundering investigation precludes the use of orders under the Proceeds of Crime Act 2002, financial material may still

be acquired for evidential purposes (indictable offences) under section 9 of the Police and Criminal Evidence Act 1984 (as amended).

As alluded to in the introduction, a financial profile may also be provided in support of the investigation. This may take the form of a detailed lifestyle or other specified financial profile for a victim, offender or associate, or following the examination of other financial data, can be used in conjunction with other information such as mobile phone data or in support of analytical work completed in relation to a timeline.

The Financial Investigator or Financial Intelligence Officer will also be responsible for providing the case disclosure officer with schedules of all relevant material that has been collected during the course of the financial investigation.

5 Civil Recovery

Where a conviction is not secured, or confiscation proceedings are not successful, and the subject is suspected of being in possession of criminal property, the Financial Investigator can advise on whether the case may be suitable for civil recovery under Part 5 of the Proceeds of Crime Act 2002.

The Crown Prosecution Service and SOCA can both undertake civil recovery cases. These cases are dealt with in the High Court to the civil standard of proof.

Text Box 7

A career criminal with 21 previous convictions was arrested and charged with a series of distraction burglaries, targeting elderly people. Despite pleading guilty to 14 such offences, the benefit realised by the defendant from these offences was just £1,580 (the amount confiscated by the criminal court). As the benefit was less than £5,000, this failed to trigger the criminal lifestyle assumptions under the Proceeds of Crime Act 2002, and precluded the Financial Investigator from applying for confiscation of the defendant's considerable amount of accrued assets, which it was suspected were derived from crime. Apart from historical benefit payments, no other form of legitimate income could be found. The case was subsequently referred to the High Court for civil recovery. Prior to this hearing a settlement agreement was offered by this individual, which resulted in a civil recovery order for 90% of his known assets, totalling £430,000.

6 Conclusion

Financial information can be a useful part of the investigative strategy in any type of investigation, including:

- Identifying motives, associations and links to people and places;
- Locating or identifying suspects, witnesses or victims;
- Providing information on a suspect's movements (proactive, covert use of financial information);
- Identifying offences committed, including the potential tactical options afforded by the use of the money laundering offences;
- Identifying the use of other services such as phones, transport and amenities relevant to the case.

When considering which types of financial information are appropriate to the investigation, the reason for the enquiry should determine the style of the financial investigation required. Any request for a 'financial profile' has to be supported by clear objectives. If in doubt, seek advice from the Financial Investigation Unit.

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Case Study of Mark Corner, the Murderer of Two Sex Workers in Liverpool

Detective Superintendent Laurence Carr
Merseyside Police

Abstract

This case study details the investigation into the murders of sex workers Pauline STEPHEN and Hanane PARRY, who were abducted separately, murdered, and dismembered in July 2003 in Liverpool. The incident started as a missing person enquiry in an adjoining force area and the article covers issues such as decisions on primacy, the proactive use of media in high risk missing person cases, managing multiple large area scenes, developing investigative hypotheses, managing international media interest, the use of various forensic techniques, such as forensic entomology, and the benefits of multi-agency working.

After the case concluded, it became the subject of a play entitled 'Unprotected', which was shown at the Liverpool Everyman Theatre and toured extensively. Perhaps ironically, on the first day of rehearsals, another sex worker was found murdered in Liverpool.

The killings reignited the debate on the legalisation of prostitution.

The author is an experienced PIP 3 Senior Investigating Officer (SIO) who has investigated numerous homicides during his twenty-eight years with Merseyside Police. He currently works within the Force Major Incident Team and is the force Kidnap and Investigative Interview Champion. He is the Joint Deputy Chair of the Family Liaison National Executive Board.

Contents

1. Background.....	77
2. Investigative Hypothesis – Clear the ground.....	79
3. Post-mortem Examination.....	80
4. Public Safety and the Media.....	81
5. Identification of the Second Victim – Help from partner agencies	81
6. Search Strategy and Scene Management	82
7. Sequence of Events	84
8. Dealing with Mark Corner	85
9. Lessons Learned	85

All correspondence should be addressed to:
Laurence.H.Carr@merseyside.pnn.police.uk

1 Background

Pauline Stephen was twenty-six years old and lived, with her partner and young son, in the Skelmersdale area of Lancashire. Pauline had moved to Skelmersdale from Liverpool six months before her death. She was born and bred in Liverpool. She was a habitual drug user and turned to street prostitution to fund this. She loved her son and shielded him from her activity.

Figure 1 Image of Pauline Stephen



On the evening of Friday 11 July 2003, Pauline left home to work on the streets of Liverpool. She used her Ford Escort estate car to travel to work and she usually parked it near to where she was doing business and used it to return home afterwards.

Though it was not uncommon for Pauline to go missing for a few hours, usually because she had been arrested, she always ensured that telephone contact was made with her family quickly.

On this occasion Pauline did not return home and, by the middle of the following day, her partner became very concerned. Together with Pauline's sister, he carried out enquiries at local hospitals and police stations, but by Monday 14 July 2003 she was still missing and he reported this to Merseyside Police. As she was missing from an address in Lancashire, the report was passed on to them and they started the missing person enquiry.

Lancashire Police conducted initial enquiries and, on Wednesday 16 July 2003, they escalated the missing person investigation to CID, who started a local media campaign to try and locate Pauline. Though Pauline lived in Lancashire, the media campaign centred upon the Liverpool media, which proved invaluable as it was the use of this media campaign that would ultimately lead to the discovery of her body. Primacy at this time lay with Lancashire Police and Merseyside Police played a supportive role to the Lancashire investigation.

One week after Pauline disappeared, as a direct result of the media campaign, a member of the public from Anfield in Liverpool contacted the police to report that the car, publicised in the local newspaper as belonging to the missing girl, was parked outside his home. Pauline's car was found insecure but otherwise undisturbed in St Domingo Vale, Anfield.

The following day, the issue of primacy was discussed and a decision was made that the enquiry remained a missing person enquiry and should continue to be led by Lancashire. A joint search strategy was developed involving the use of Lancashire and Merseyside search officers to search the area in which the vehicle was found. The fact that Lancashire had primacy but most of the activity at that time needed to take place in Merseyside perhaps should have led to a different decision being taken. Whilst it is understandable that forces may be reticent to accept primacy in such a situation, particularly when the missing person has disappeared from another force area, the longer Pauline remained missing and the more it was discovered that all of her connections were with Merseyside, the more logical it was that primacy should shift. The important issue is that the forces involved work effectively together to produce the best outcome. Whilst in this case that did happen, the development of an effective search strategy around the abandoned vehicle would have been better coordinated and taken less time if primacy had been handed over at that time.

St Domingo Vale is a residential street of three-storey terraced houses and the vehicle was found parked about thirty yards from the entrance to an alleyway that led behind the houses. The other end of the alleyway was bricked up, and was a dead end. This alleyway was full of bags of household rubbish and discarded furniture. The area had not been cleaned or rubbish removed for some time. House-to-house enquiries were carried out which produced no further information.

The following day, during the course of the search, what was believed to be a partly decomposed human leg was found protruding from a bin bag in the alleyway at the rear of St Domingo Vale. The Home Office Pathologist and a Forensic Scientist later examined the leg and the find was confirmed as human. There were over

twenty other bin bags nearby, all of which were tied and all of which may have contained body parts. The SIO made the decision to remove these bags to the mortuary and untie them under controlled conditions, as part of the post-mortem examination, which was arranged for the following day.

Most of the houses adjacent to the alleyway were divided up into flats. Most of the bin bags were found behind number 14, though the scene within the alleyway was clearly a deposition site. Number 14 consisted of three flats. Nobody was in these flats when the police called and it was initially impossible to determine whether they were occupied. Notwithstanding this and for no other reason than it being the house closest to the find, number 14 was declared as within the scene parameters and a police officer was put on guard.

At this time Lancashire officers also attended the scene and primacy was then formally handed over to Merseyside Police.

2 Investigative Hypothesis – Clear the ground

The SIO's initial investigative hypothesis was that the place where the murder actually occurred must be nearby. He formed this hypothesis due to the position of the car, which was not parked close to the entrance to the alleyway. His theory was that, if the car was used to transport the body, the driver would have parked it close to the entrance to avoid walking approximately thirty yards along the street carrying body parts in bin bags. Based on this theory, the SIO took steps to obtain a search warrant for 14 St Domingo Vale. His plan for fast-track action was to search each flat and the communal area within number 14 and, if nothing was revealed, to work outwards searching ten adjacent properties either side of number 14 with the permission of the occupiers. Should permission not be forthcoming, consideration would be given to obtaining search warrants. The hypothesis turned out to be entirely accurate.

During a long, detailed forensic examination of 14 St Domingo Vale, small traces of what appeared to be blood were found in the bathroom of flat 2. Clearly the flat had been recently thoroughly cleaned.

Before the search plan had been implemented, a man went into a Liverpool police station and reported that he thought his brother had killed two female prostitutes. He said that his only brother was a mental patient and had told him how he killed the girls, cut them up and put them into bin bags. The SIO was contacted and he instructed that a full statement be obtained and intelligence checks instigated. At

this stage the SIO thought that he was dealing with one missing, presumed murdered, prostitute. It was possible, therefore, that this person had seen the media coverage and was an attention seeker making a false claim. As the investigation developed and this witness was interviewed, it became clear that he had vital information. He was the natural brother of Mark Corner and the media coverage about the discovery of body parts had prompted him to come forward. Over the following two days it became clear that Mark Corner had been staying at Flat 2, 14 St Domingo Vale.

3 Post-mortem Examination

On Monday 21 July 2003 the post mortem took place and, upon opening the bin bags, two female dismembered bodies were discovered. A tattoo led to the initial informal identification of Pauline Stephen but the identity of the second body was a mystery.

It also transpired that certain body parts were missing, namely a head, an arm and a pair of hands.

The examination revealed that the killer used two distinct methods to dismember the bodies. In the case of Pauline Stephen, he used a carpet knife to incise around the major joints and then used his own physical force. All of the bones were intact. The assessment of the pathologist was that this must have taken extreme physical exertion and would have been difficult to do. In the case of the second victim, the killer had used saws to cut through bone and tissue. It was assessed that he learned from his first experience and the investigation team later recovered CCTV footage showing Corner buying tools, including a saw, at a local DIY shop in the period between the two killings.

It was important that the SIO could definitively establish that there were only two bodies. The possibility existed that there were more victims and it had to be established which body part came from which victim for burial and the Coroner. Samples for DNA analysis were taken from every body part.

The actual cause of death could not be definitively established. The dismemberment of the bodies, which took place after death, destroyed or damaged tissue to such an extent that the pathologist was unable to give a cause of death, though it is believed that they were both manually strangled.

4 Public Safety and the Media

As soon as it became known through local residents' contact with the media that body parts had been found, local, national and international media interest grew. The Force press office managed the media strategy and tried to keep the SIO as undisturbed as possible.

Once the identity of the suspect was known and the fact that he had killed at least two people established, public safety was an issue. This had to be balanced against the wish not to prejudice future court proceedings. In conjunction with the Crown Prosecution Service, a statement was formulated and, during the evening of Monday 21 July 2003, a press conference was held where the identity of the suspect was revealed, the public were warned and the discovery of the second body was disclosed. This caused a massive increase in press activity, which had been anticipated.

The SIO chose to front the press conference with a local uniform colleague. Whilst it went well, the SIO had been in charge of a high-pressure situation for over twenty-four hours and was sleep deprived. Doing the press conference also took him away from his role for some considerable time. As a result of this press conference, police received a call locating Corner and arrested him safely.

5 Identification of the Second Victim – Help from partner agencies

A main line of enquiry was to establish the identity of the second victim. The SIO ensured that the investigation team included staff that had previously been involved with investigating the murder of another sex worker to use the knowledge that they had gained. This proved invaluable in quickly identifying the second victim. One of the detectives had built up good relationships with staff from a local outreach project designed to help sex workers¹. The officer provided a description of the unidentified female to staff from the outreach project who immediately provided a name and her identity was quickly established. This saved time and effort and enabled the family of Hanane Parry to be traced.

A multi-agency approach is crucial in such cases. Information is also held on the 'Ugly Mugs'² system by outreach agencies, which links in to those men who have

¹The project was, at that time, known as 'Lynx'. This has now become The Armistead Project.

²'Ugly Mugs' is a national scheme intended to identify men who use sex workers and have a propensity to violence or aggression.

used sex workers and used violence or aggression. This helped to establish whether Corner had been involved in any earlier attacks.

Hanane Parry, who was 19 years old when she died, was also a habitual drug user and had experienced a troubled childhood leading to her family losing contact with her some time before her death.

Figure 2 Image of Hanane Parry



Hanane Parry originated from the Chester area. She had a transient, chaotic existence and before she died she had been living temporarily with another couple in Liverpool who also abused drugs. She was not reported missing and it is true to say that it may have been some time before anybody would have done so.

6 Search Strategy and Scene Management

Information was provided, by his brother, that Corner may have deposited the missing body parts in Stanley Park, which is a large public park between the Liverpool and Everton football grounds. As previously mentioned, the status of Corner's brother was kept under constant review and decisions about whether he was a witness or a possible accomplice had to be made throughout. The difficult balancing act that is often carried out between the need to obtain as much information as possible and not alienating those providing that information and the need to identify and prosecute offenders was certainly in play. The status of Corner's brother was kept

under review from the time that he came forward and throughout the whole investigation. He has never been charged with any offences arising from these deaths.

Stanley Park was evacuated, secured and searched. Given what was already happening, this task presented a significant logistical commitment for the force and extensive mobilisation of resources became necessary. Cadaver search dogs were deployed from adjoining forces. A head and arm were recovered from undergrowth in the park. A pair of hands was later found in the refrigerator in the flat where the killings took place. After these finds, no other body parts from either Pauline or Hanane were missing.

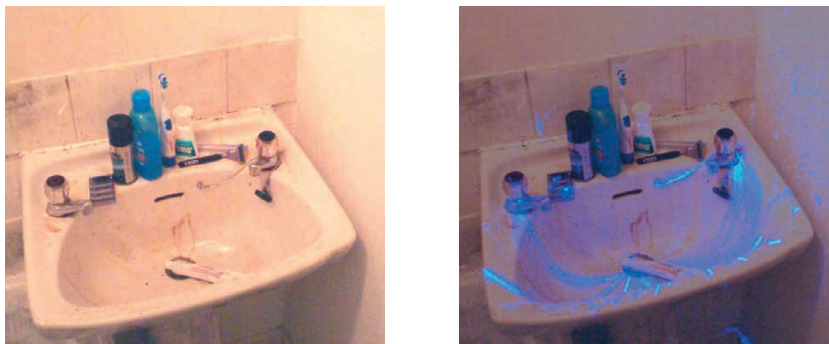
In addition to searching the park, within the first twenty-four to forty-eight hours, the force received numerous calls from members of the public reporting bin bags in alleyways that smelled strongly and may contain body parts. These reports were stimulated by the media and they all had to be dealt with. A search strategy involving fast time assessment and quick search was devised to deal with each report. The SIO handed over the logistical management of these issues to the force operations manager, who ensured that resources were found and that the force continued to provide an effective day-to-day service.

The examination of the alleyway took several weeks and, after forensic examination, culminated in a thorough physical search. A large number of exhibits were seized from within the rubbish in the alleyway. This consisted of unexplained items that may or may not contain forensic or physical evidence and the bin bags within which the body parts were found.

Crime Scene Investigators spent two weeks going through the material from the rear alleyway and the scenes. It is no exaggeration to say that the working conditions and the discoveries made were horrific. The work of the exhibits officers had to be risk assessed for Health and Safety and they wore full body suits and face masks when handling exhibits. The majority of exhibits were taken to a police station surrounded by residential properties. After a short time the smell from the exhibits was unbearable. Advice was sought and a refrigeration unit hired and placed in the police station yard. Once items are frozen they do not smell, however the exhibits officers then spent time in a refrigeration unit carrying out their work.

The bathroom within Flat 2 was treated with Luminol and photographed. At the time there was discussion within the forensic community about whether Luminol presented a health risk to those applying it. This difficulty has now been overcome and the use of Luminol proved to be very successful in presenting graphic photographic evidence of the attempts to clean apparent blood staining from the bathroom.

Figure 3 Images of bathroom sink with (right) and without Luminol (left)



Forensic entomology was used to determine the time and date of the deaths. The alleyway where the body parts were found was approximately three feet wide and had high brick walls on either side. This led to an increased temperature within the alleyway. The temperature in the alleyway had to be taken each day for a week in order to calibrate the difference between the recorded Met Office temperatures and that within the alleyway to assist the Forensic Entomologist.

Each bin bag containing a body part was tied at the neck and must have been handled by the killer. Difficulty was encountered obtaining agreement for examination of these bags. Numerous fingerprint bureaux refused to handle the bin bags for health and safety reasons, including Merseyside Fingerprint Bureau.

7 Sequence of Events

It was crucial to establish a sequence of events in respect of both victims and Corner. Interviews of sex workers, the brother of Corner, liaison with the outreach project and forensic entomology helped to establish times and dates of death and provide clarity about events.

It was discovered that Pauline had been picked up on the day of her disappearance by Corner and taken to his flat. He had killed her at that time and dismembered her body. It is still not known whether Pauline's body was in his flat when, the following day, he picked up Hanane Parry, took her to his flat, killed her and used a different method of dismemberment, having learned from his first experience.

8 Dealing with Mark Corner

Corner was 26 years old when he killed Pauline Stephen and Hanane Parry. For many years he had suffered from mental health problems and had been diagnosed as schizophrenic. Once he was in custody, his mental capacity was assessed and he was deemed fit for detention and interview. Medical assessments were made at regular intervals throughout his time in custody prior to charge. The SIO had the interviews monitored by a Forensic Psychologist who had earlier also been used to help the process of arrest. The use of the Forensic Psychologist led to a change in one of the interview team due to the development of friction between one of the interviewers and Corner's legal representative, though ultimately Corner did not answer any questions put to him.

It was discovered that Corner had visited numerous medical professionals over many years, discussing symptoms including visions of murder and dismemberment. The issues arising around his medical treatment and any liability were dealt with through a review commissioned by the Primary Care Trust (PCT). At the time his offending history meant that he did not fall within the criteria for Multi-Agency Public Protection Arrangements and he was relatively unknown to the police.

Corner was deemed unfit to stand trial due to his mental health and was subjected to a hospital order with the proviso that only the Home Secretary could sanction his release. He remains in a high security prison-type hospital.

9 Lessons Learned

Great care should be taken on issues of primacy. By the time that Pauline's car was found she had been missing for one week. The car was found in Liverpool, the victim originated from Liverpool and until recently had lived there. Whilst in this case no detriment was caused to the outcome, it may have led to delays in implementing a search strategy.

The inclusion of members of staff as part of the investigation team with previous experience of sex worker murder investigation should be seen as best practice. One of the officers on the investigation team knew about the outreach project and had built up personal relationships with the staff through previous involvement in an investigation into the murder of a sex worker. This led directly to the early identification of the second victim. A multi-agency partnership approach is crucial in such cases.

The old adage ‘Clear the ground from underneath your feet’ works. The development of investigative hypotheses around what was close to where the bodies were found proved invaluable. Simple logic in analysing the position of the car in relation to the alleyway enabled the hypothesis that the car had not been used to transport the bodies to be developed. This prevented the SIO from looking too far too soon and proved to be an accurate evaluation of events.

Exhibits that are decomposing present a clear health and safety risk. This can be a hurdle to proper treatment of exhibits and their effective forensic examination. Exhibits that are giving off extreme smell can be frozen to prevent the smell persisting.

In such cases, the SIO should think carefully before agreeing to become the person who presents to the media. If the case had not been resolved as quickly, further difficulties would have been caused by the fact that the SIO chose to ‘front’ the media himself.

Responding to Major Disorder in Prison Establishments and Immigration Removal Centres

Neil James

NPIA Programme Director for the PIP Level 4 Project

Abstract

The responsibilities and challenges a Senior Investigating Officer (SIO) has to undertake when investigating criminal culpability in the aftermath of a prison riot in Prison Establishments and Immigration Removal Centres can be complex due to a range of issues such as clarity of command, access to crime scenes and the identification of suspects and witnesses, to name but a few. It is recognised that this article can only provide a certain amount of information and will not necessarily prepare an individual for the realities of working in such an environment. This article is intended to provide an overview of the key agencies involved in such incidents and the services they provide, as well as strategic awareness and tactical advice based on research and the experiences of those involved in investigating such offences.

The author, former Detective Chief Superintendent (DCS) Neil James, was until recently the Head of Crime in Nottinghamshire Police and a member of the ACPO Homicide Working Group, leading on Deaths in Prison Establishments. He is the current Programme Director for the PIP Level 4 Project.

Contents

1. Command and Control.....	89
2. Strategic Partnerships.....	92
3. Investigative Considerations.....	93
4. Legislation, Trial issues, Debriefing and Disputes.....	99
5. Conclusion.....	101

All correspondence should be addressed to:
neil.james@npia.pnn.police.uk

1 Command and Control

In order to effectively manage the complexities of investigating criminal culpability in the aftermath of a prison riot in either a Prison Establishment or Immigration Removal Centre, the SIO needs an understanding of command protocols along with an overview and awareness of the key agencies involved in such incidents and the services they provide.

In recent years, there have been a number of occasions when police forces have responded and supported the Prison Service and private security staff in managing major disorder. For example, in April 2009, more than 400 prisoners were involved in the wrecking spree at HMP Ashwell in Rutland, setting fire to buildings in a protest over privileges. Three-quarters of the jail was rendered uninhabitable before prison officers could bring it under control with the help of riot police.

Similarly, in November 2006, several fires were lit at Harmondsworth Immigration Detention Centre in Middlesex, setting off the sprinkler system that caused disruption and major disturbances in all four wings.

1.1 Prison Service Command and Control

For serious incidents, the Prison Service assumes the Gold, Silver and Bronze command structure as adopted by the Police Service.

- The National Commander (Gold)
- Establishment Commander (Silver)
- Sub (Tactical) Commanders (Bronze)

The initial response to serious outbreaks of disorder within HM Prisons remains the responsibility of an Area Manager (Governor Grade) who decides if the Prison HQ command suite (Gold) should be opened. This includes serious outbreaks of disorder within Immigration Removal Centres operated by the Prison Service.

Well-established contingency plans exist within HM Prison Service. The initial response and coordination of resources following large outbreaks of disorder remain with the National Offender Management Service (NOMS), which is responsible for establishing a Gold Command Centre.

1.2 Privately contracted prisons and Immigration Removal Centres

The command arrangements for handling serious incidents in contracted prisons and Immigration Removal Centres is different from those in directly managed establishments due to the nature of liability under the contract.

Contractor's Gold Commander

The Contractor's Gold Commander is contractually in charge of the management of the incident so long as they retain command of the centre.

Prison Service Gold Commander

The Prison Service Gold Commander occupies a key advisory role to the contractor. Although they will have initial contact with the Contractor's Gold Commander, they would normally deal directly with the Silver (Establishment) Commander, providing advice on the management of the incident. The Prison Service Gold Commander must agree in advance any intervention plans where Prison Service personnel are being deployed alongside the contractor's staff.

Silver (Establishment) Commander

The Silver (Establishment) Commander will advise the Prison Service Gold Commander of the proposed course of action.

Transfer of control of Privately Contracted Establishments

Handover of command of a Privately Contracted Prison to the Prison Service can be imposed by the Secretary of State under Section 8 of the Criminal Justice Act 1991, who can appoint a Crown Servant to act as Governor under certain circumstances. Decisions of this nature are made by the Chief Executive of NOMS based upon assessments made at senior level within the Prison Service.

Similarly, Section 151 of the Immigration and Asylum Act 1999 provides the same authority with regards to Privately Contracted Immigration Removal Centres under the same circumstances but with the decision maker under these circumstances being the Secretary of State.

The Prison Service Gold Commander will appoint a Prison Service Silver (Establishment) Commander in the likelihood that transfer of control is approved,

who will take over control of the establishment. Liability will then transfer to the Prison Service.

SIOs should make contact with the UK Border Agency (UKBA) Head of Security and Intelligence¹ and not the Centre Manager regarding all investigative issues relating to Private Immigration Removal Centres.

1.3 Police Command and Control

Events of this nature will normally require the formation of a formal force Gold command structure led by a Chief Officer providing clarity of roles and responsibilities².

During the command and control of an incident, it is important to determine at what point the police can take primacy for the investigation. This should be the responsibility of the Police Gold Commander in consultation with senior HM Prison Service officials through their Gold Command structures.

Clear protocols need to be agreed between the investigating police force and HM Prison Service. The protocol should clearly outline the areas the prison service will facilitate and information that can be accessed.

Strategic Command and Control - The role of partner agencies

In the resolution of these types of incidents and operations, the Fire Service and the Ambulance Service, along with certain other partner agencies, are likely to become involved with the Gold Commander, forming a Strategic Coordinating Centre. Gold Commanders must ensure that there are clearly defined and agreed roles between the agencies to avoid confusion.

Police contingency plans

All forces with prison establishments and Immigration Removal Centres within their force area will have detailed contingency plans. Ownership of such plans, is generally the responsibility of Operational Planning Departments, with personnel conducting periodic reviews and updates. Gold and Silver Commanders, as well as SIOs, are encouraged to familiarise themselves with the contingency plans in the event of major incidents at these premises.

¹The Force Prison Liaison Officer can usually assist in facilitating contact with the UKBA Head of Security and Intelligence.

²For further information see *ACPO (2009) Guidance on Command and Control*.

Prison Service response and support

Operation Tornado is the Prison Service national plan for providing operational support and mutual aid arrangements between prison establishments. One specific function of the Tornado Units is to restore order and control of the establishment. Tornado Teams have an evidence gathering capability and can work with Police Support Units (PSUs) if required.

Prison Service Technical Support Units also provide an intelligence and evidence gathering capability, which can support police investigations.

2 Strategic Partnership

2.1 National Offender Management Service (NOMS)

NOMS was established to join up prison and probation services, to enable offender management to be delivered more effectively and to strengthen and streamline commissioning to improve efficiencies and effectiveness. NOMS now manages all public and private sector prisons. The relationship between law enforcement and the Prison Service is now well established and strong. The role of the Police Advisor to NOMS is fundamental in reinforcing and building upon the relationships established with HM Prison Service under NOMS.

2.2 Police Advisors Section (PAS)

PAS provide the national interface between the police service, NOMS and the Prison Service. PAS have a national responsibility for assisting and supporting the police service and law enforcement agencies at all levels. PAS also provide full time support to NOMS Major Incident Gold Command, advising the NOMS Gold Commander on policing related issues during major incidents and acting as the strategic liaison point between NOMS, HM Prison Service and local police command.

2.3 UK Border Agency (UKBA)

The UKBA are responsible for securing the United Kingdom (UK) borders, controlling migration into the UK and managing UK border controls, as well as enforcing immigration and customs regulations. They also consider applications for permission to enter or stay in the UK, citizenship and asylum.

UKBA have a number of Immigration Removal Centres spread throughout the country, some of which are operated by HM Prison Service and others under private contract.

2.4 Prison and Probation Ombudsman (PPO)

The PPO investigates the circumstances of the deaths of prisoners including those held in Immigration Removal Centres and Young Offender Institutions. This includes investigating the general circumstances and events surrounding the death, the operational and managerial matters, the clinical care of the deceased, as well as providing explanations and insight for bereaved relatives and to assist the Coroner's inquest. The role of the police is to conduct a criminal investigation into the death itself.

3 Investigative Considerations

The Prison Service recognises that the police will want to secure and preserve evidence to support a criminal investigation. The Prison Service has responsibility to facilitate and assist investigators, which includes the deployment of Crime Scene Investigators into establishments.

3.1 Audio and visual recordings

Audio and visual recordings of criminal activity held by Prison Service personnel should be handled by the Prison Service Technical Support Advisor and correctly secured. An official request from the SIO will be required to obtain a copy of such material.

3.2 Clothing and property

SIOs should consult with the Prison Service (Establishment) Silver Commander to secure prisoners' clothing and other property in their possession. SIOs should balance the need for safety against evidential value.

3.3 Air support

The use of visual images has been found to be extremely beneficial to investigators. However, it is advisable that, prior to such a deployment, consultation takes place between Police Gold and Prison Service Gold Commanders to ensure that the deployment does not further aggravate the stability of the situation.

Figure 1 Aerial Photograph of HMP Ashwell



3.4 CCTV

Early identification and capture of CCTV products is critical in incidents of this nature. Advice can be sought from the Prison Service Silver (Establishment) Commander or Police Prison Liaison/Intelligence Officer³.

3.5 Nominal roll

Securing of the nominal roll will assist investigators in knowing who was in the establishment at the time of the incident. This should be considered an early fast-track action and be requested through the Prison Service.

3.6 Forensic identification

A significant number of DNA 2 Kits may be required when responding to events of this nature as there is the potential to need to swab a high volume of individuals to confirm their identity. The use of Mobile Fingerprinting Technology equipment is an alternative way to confirm an inmate's identity.

³For further information on Passive Data Generators refer to *ACPO (2006) Murder Investigation Manual – Section 13.3. Developing the Strategy*.

3.7 Searching

Once control of the establishment has been regained, a physical search will be required prior to any detailed examination of the scenes. SIOs should consider the appointment of a POLSA Coordinator to manage this function⁴.

3.8 Crime scene management

There may be a considerable delay before crime scenes can be entered. An initial 'safety search' is required to ensure that a detailed examination can take place in a safe environment. The appointment of a Crime Scene Co-ordinator is encouraged due to the multiple crime scenes that may be present⁵.

3.9 Suspect management

Prisoner handling and custody provision is a significant issue due to the potentially high number of arrests. An early consideration for the Prison Service is a surrender plan. The SIO will need to be aware of the surrender plan and consult with Prison Service Bronze 'Surrender' Commander and the Crime Scene Co-ordinator to manage and maximise the forensic opportunities.

3.10 Cordons

The use of cordons to channel inmates to identified containment points is encouraged to provide a structured and methodical approach. SIOs should consider a seizure strategy which will allow for the video recording and photographing of inmates (including clothing worn on surrender), seizure of property and clothing, a process which can assist in the continuity of exhibits. Storage may also become an issue due to the high volume of exhibits seized. The Prison Service Silver Commander should identify areas within the establishment areas that can be utilised as holding areas until inmates can be relocated.

3.11 Private Immigration Removal Centres

SIOs should convene an early meeting between the Crown Prosecution Service and

⁴For further information on Searches refer to the *ACPO (2006) Murder Investigation Manual* – Section 12.3 and 12.4 Developing and Implementing a Search Strategy.

⁵For further information on Crime Scene Management refer to the *ACPO (2006) Murder Investigation Manual* - Section 9.4.4 (Examination).

UKBA Head of Security and Intelligence due to the status of detainees in Private Immigration Removal Centres. This will ensure that a proportionate approach towards a criminal prosecution is considered based upon the individual's impending removal from the UK.

3.12 Witness interviews

It is recommended that all inmates within the establishment at the time of the incident be interviewed. The use of the pro forma questionnaire is recommended, considering the numbers of inmates involved and the ability to fast track the process and quickly identify those who have information and wish to assist the police investigation. Questionnaires can be printed on different coloured paper for each wing, which will assist the Major Incident Room (MIR) and will assist identification and prioritise inputting onto HOLMES.

3.13 Relocation and tracing of detainees

Following major disorder, suspects and witnesses can be dispersed to different establishments throughout the country, which can create real difficulties in locating individuals.

The deployment of a Prison Governor Grade within the MIR has proved of great benefit in facilitating this process and furthermore provides the opportunity to develop and fast track the Production Order process with the assistance of the Governor's representative. Transportation and accommodation of prisoners to more local establishments and locating prisoners more conveniently to the investigating force area can be arranged, reducing time needed to complete enquiries and costs.

The Prison Service has introduced a networked Offender Location Management System, which can assist in the early identification of an inmate's location. Force Prison Liaison Officers can support the SIO in this regard. SIOs should be aware of and have access to this information, and ensure that cross references are made with the nominal roll from where the individual has been removed, as it may identify the early and unexpected release of an individual suspected of serious offences or a significant witness.

Where appropriate, the use of a single point of contact (SPoC) within the UK Border Agency is also encouraged to track potential witnesses and suspects.

3.14 Locating witnesses

An officer of Governor grade can assist SIOs with tracing witnesses who have subsequently been released from custody. They can be identified through either Prison or Probation Service records. Similarly, Prison Service personnel may have been transferred to other establishments or no longer work within the environment. The support of the Prison Service will be required to trace them (including contracted staff and specialist and voluntary support workers).

The use of a marker on PNC has previously been adopted as a method to trace/locate individuals who have been released.

3.15 Staff interviews

SIOs should establish arrangements for the interviewing of staff at an early stage in the investigation. A broad outline of these arrangements should be included within a Memorandum of Understanding. Consideration must also be given to establishing the most appropriate venue and environment for this to take place in.

3.16 Significant witnesses

SIOs must consider the issues of dealing with significant witnesses in accordance with national guidelines, which entails considering whether certain individuals might qualify for Special Measures as intimidated and/or vulnerable witnesses.

The SIO should liaise with the UKBA Head of Security and Intelligence in relation to Immigration Removal Centres, where significant witnesses have been identified. The UKBA can delay the removal of individuals. In cases where witnesses have already been removed, protocols exist with the Foreign and Commonwealth Office to return these individuals back to the UK.

3.17 Risk management

Suspects and witnesses should not be detained at the same establishments. In cases of this nature, the status of individuals may change at short notice and therefore risk assessments of individuals should be an ongoing process throughout the investigation. Witnesses remaining within a prison establishment immediately become increasingly vulnerable. Individuals supporting a police investigation are at an increased level of risk of harm.

The Prison Service has primacy for the management of risk of a witness that remains in custody. The SIO should contribute to the risk assessment process and is responsible for ensuring that where risks are identified through the investigative process these are clearly documented and communicated through an agreed process to ensure any actions are effectively implemented, managed, monitored and reviewed.

Support in relation to risk management can be provided by force Prison Liaison/Intelligence personnel and, if necessary, advice can be provided by the Prison Advisors' Section.

3.18 Identification

SIOs should ensure that early consultation with the Force Identification Officer takes place, as identification procedures are likely to feature and conventional ID parades are likely to be extremely problematic. This will ensure appropriate support and advice is available and that arrangements for and the conduct of identification procedures are compliant with Code D of the Police and Criminal Evidence Act 1984 (PACE).

3.19 Disclosure

SIOs should consult with the Prison Service to ensure they appoint a Disclosure Officer as a SPoC. Due to the range of tactics deployed there is the potential for issues that could attract Public Interest Immunity (PII). SIOs are advised to contact the Prison Advisors' Section to address disclosure issues.

3.20 Access to and use of prison intelligence

Applications for access to intelligence must be made in writing to the Prison Governor, whose authority will be needed for the release of information. Applications need to be justified, proportionate and necessary, and are considered on the grounds of helping to detect, investigate or prosecute an offender. The presumption will be that any information or intelligence obtained from the prison will be used solely for intelligence purposes and in line with the Data Protection Act 1998.

Only in the most serious of cases should consideration be given to using material provided for intelligence purposes. This must be only if full consultation has been made with the Prison Governor. In the event of a PII application, the Prison Governor will be able to make representations to the Crown Prosecution Service (CPS) and Prosecution Counsel.

3.21 Covert policing

SIOs considering the use of covert policing tactics within these types of establishments should initially consult their force Covert Policing Manager. It is a mandatory requirement for the SIO to liaise with the Prison Advisors' Section, who will act as liaison with the Prison Governor in the authorisation and use of covert techniques. The Prison Advisors' Section can also provide guidance and expertise when considering covert techniques to support investigations. SIOs should appoint a suitably qualified person to fulfil this role to assist them in developing covert strategies⁶.

In all cases, it is strongly recommended that an officer of ACPO rank be informed, to ensure the implications of conducting such operations in the prison environment are addressed. All issues relating to the use of covert techniques within Immigration Removal Centres must be discussed with the UKBA Head of Security and Intelligence.

4 Legislation, Trial Issues, Debriefing and Disputes

4.1 Legislation

The Prison Security Act 1992 makes provision for an offence of prison mutiny. This legislation also covers Privately Contracted Prisons. There is no similar legislation for offences committed within Immigration Removal Centres.

4.2 Trial issues

Due to the risk to individuals, consideration must be given to trial preparation, suspect and witness management, segregation and the use of special measures. Early consultation with CPS and the early appointment of counsel is advised due to the complexity of such cases. There is a likelihood that suspects and witnesses who are still serving prisoners will be detained in the same secure facility during the trial.

⁶See *ACPO (2005) Guidance on Major Incident Room Standardised Procedures (MIRSAP)* for 'The role of a Covert Policing Manager', Section 10 'The Major Incident Room and Covert Policing Cell' and Section 21.3 'Developing the Strategy'.

4.3 Debriefing

Prison Service debriefing

SIOs should be aware that the Prison Service routinely debriefs incidents of a serious nature. Prison Service Silver Commanders are advised to consider a ‘hot’ debrief immediately after an incident has been resolved involving relevant personnel.

Operational debriefs

Operational debriefs will always be conducted on the occasions that the Gold Command Suite has opened, but will only take place after police interviews of those participating in the process have been completed.

Critical incident debriefs

Critical incident debriefs are provided for all staff involved in the incident where they can meet together, share their perceptions, thoughts and feelings about the incident. Similarly, the Prison Service recognises that, under these circumstances, it is essential that the operational debriefing and the taking of statements by the police are completed first.

4.4 Dispute resolution

Considering the complexity of these investigations and the demands being placed on senior personnel, there is always the potential for disagreements to occur, particularly with regards the post-investigation element of the police response.

Should disputes arise between senior personnel, efforts should be made to resolve these through the existing Command structures that will be in place. If necessary, the Police Advisors’ Section should be consulted for advice.

5 Conclusion

Investigating criminal culpability in the aftermath of a prison riot is probably one of the most challenging roles an SIO can undertake.

It is recognised that, due to the complexity of these enquiries, guidance can only provide a certain amount of information. It will not necessarily prepare an individual for the realities of working with and managing numerous partners, whilst having to take a back seat during the initial response and then pick up the pieces and try and make sense of them once order has been restored.

This article is intended to provide an overview of the key agencies involved and services provided, command and control structures and some technical investigative advice based on research and the experiences of those involved most recently in investigating such offences.

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Focus On... Forensic Pathology

Featured Expert: **Professor Guy Ruty**
 Chief Forensic Pathologist
 East Midlands Forensic Pathology Unit

Interviewed by: **Fazeelat Saleem**
 Investigative Practice Team
 Practice Improvement Unit
 National Policing Improvement Agency

Abstract

This edition of *Focus On...* covers forensic pathology. Professor Guy Ruty, Chief Forensic Pathologist of the East Midlands Forensic Pathology Unit, discusses the development of new DNA and radiology technology and its impact on the post-mortem process, as well as the potential for further support that forensic pathologists can offer SIOs.

Contents

1. Introducing the Subject	105
2. Introducing the Expert	106
3. The Interview	107
4. Conclusion	113

All correspondence should be addressed to:
Homicide.Journal@npia.pnn.police.uk

1 Introducing the Subject

1.1 What is forensic pathology?

The Royal College of Pathologists defines forensic pathology as ‘the investigation of deaths where there are medico-legal implications’; these include homicides, deaths in custody, violent or suspicious deaths. Forensic pathology is currently considered a specialist branch of histopathology – the tissue diagnosis of disease. Consequently, training in histopathology is an essential prerequisite to qualifying as a forensic pathologist. All forensic pathologists are licensed medical practitioners.

SIOs are in frequent professional contact with forensic pathologists. For this reason, the article presumes a certain degree of knowledge around forensic pathology from the SIO readership, and the role of a forensic pathologist in general. Information will therefore only be included if it is likely to develop SIO awareness.

During an investigation, the primary role of a forensic pathologist is to assist with the identification of the victim, assist in establishing where they died, and, where possible, the cause, mode and time of death, through a scene (case dependent) and post-mortem examination. If the pathologist is undertaking research related to the dead, they will interact with families of the deceased to gain consent for the work to be undertaken, and answer any questions related to the post-mortem or coronial investigation which the relatives need clarifying.

Forensic pathologists are classified as expert witnesses and thus attend Crown Courts, Civil Courts, Family Courts and Coroner’s Court to explain medical issues to the judge, jury and relatives (case dependent). They also provide opinions for police, the Crown Prosecution Service, lawyers and families concerning injury causation in the living, as they are experts in the interpretation of injury causation. It would be wrong to think that their expertise is confined to the dead.

Forensic pathologists in England and Wales should be registered on the Home Secretary’s register of forensic pathologists (the so-called ‘Home Office list’). Consulting forensic pathologists are not registered on the Home Office list and should not be confused with actual Home Office pathologists. The Home Office pathologist works under the authority of HM Coroner. They assist police authorities but they are not employed by the police or the Home Office/NPIA. In Scotland they work according to the Procurator Fiscal System. Across England and Wales, forensic pathologists work within eight regional group practices. A group practice must

comprise a minimum of three forensic pathologists drawn from the Home Office Register (full members or associates). There are currently forty-one forensic pathologists working throughout England and Wales.

When a forensic pathologist attends the crime scene, he or she observes the environment of the scene, local circumstances, the position and condition of the body. Information that could assist the forensic pathologist includes medical history, any drugs at the crime scene, timescales and the last sighting of the person prior to death, and initial witness evidence. They can advise on matters related to health and safety or body recovery, and should discuss with the SIO and Crime Scene Manager the scope and priorities of the forensic strategy related to the body.

The time since death estimation starts at the scene by observing certain post-mortem changes. These include the presence or absence of rigor mortis (rigidity of muscles occurring after death), hypostasis (accumulation of blood in the lower parts of the body or organs under the influence of gravity, as occurs in cases after death), decompositional changes, post-mortem body cooling, stomach emptying as well as the effect of insect colonisation (entomology), predation (birds and animals), and plant growth (botany).

2 Introducing the Expert – Professor Guy Ruty

2.1 What are your qualifications and experience?

I am a fully registered licensed medical practitioner. I obtained my basic medical qualification of Bachelor of Medicine and Bachelor of Surgery from the Royal Free School of Medicine, London, in 1987. After undertaking my house jobs, I entered training in histopathology. Having obtained membership of the Royal College of Pathologists, I decided to embark upon a career in Forensic Pathology. I trained for two years at the Leicester Royal Infirmary, and obtained the Royal College of Pathologists Diploma in Forensic Pathology in 1996. I then moved in 1996 to the Medico-Legal Centre, Sheffield, where I became a Temporary Lecturer in Forensic Pathology and was upgraded the same year to Senior Lecturer. I was placed onto the Home Office register the same year. I then undertook a medical doctorate which considered the use of temperatures from the external ear canal for the estimation of the time since death. In 2001, I was made Foundation Chair of Forensic Pathology at Leicester University. From 2001, my achievements include:

- A Founding Fellowship of the Faculty of Forensic and Legal Medicine from the Royal College of Physicians;
- Becoming a Fellow of the Forensic Science Society;
- Being awarded an MBE, awarded in June 2010, for services to police.

2.2 How many cases have you worked on as a forensic pathologist?

I undertake around 80 cases per year, which, in theory according to my job plan, take up one third of my time. The other two thirds are taken up by academic commitments such as training new Home Office pathology trainees, teaching, undertaking research and writing. I am rapidly approaching publishing my 200th publication; I have edited six autopsy books with two further books commissioned and was the founder Editor-in-Chief of the scientific forensic journal Forensic Science, Medicine and Pathology. My Unit is the only current research unit for forensic pathology in the UK, where I currently supervise two MD and five PhD students. More information on the Units academic activities can be sourced from <http://www2.le.ac.uk/departments/emfpu>.

2.3 How many times have you provided opinions in court?

I have lost count of the number of cases, be it autopsy or opinion, that I have undertaken in my career, and the number of times I have been to court. My diary will have a court warning for most days of the year; whether I go or not is dependent upon the case involved. These days more and more people are pleading guilty, so it is not uncommon for court dates to be cancelled at short notice.

3 The Interview

3.1 What is your role in assisting criminal investigations?

As with all forensic pathologists, I am there as a medical expert who is neutral in a case and my ultimate responsibility is as a neutral party to the court. We work on the instructions and authority of the coroner, although we assist the police. Although I am being called out by the police, my Unit is being paid by the police and I am writing a report which is used by the police, I am not employed by the police, and I will never write a report that could be considered to be biased towards the police investigation. Neutrality is critical for this job.

3.2 How has your role as a forensic pathologist evolved since you first began?

I think with regards to doing the job, it hasn't changed much since I first started back in 1994. Much of forensic science is stagnant at the moment; we've had the DNA revolution. The real change that I am monitoring is the use of radiology, particularly computer tomography (CT), and its enhanced role in autopsy and forensic science investigations. Our Unit, through its research programmes, is trying to put more science into Forensic Pathology. When someone asks me how much force was involved in stabbing someone and I say mild, what does mild mean? The use of such subjective terms is historic. Through the research programmes in my Unit we are trying to assist forensic pathology and science by being able to make these assessments more scientific, reproducible and robust for court purposes.

3.3 How has the development of new technology impacted the post-mortem process?

The basic post-mortem is the same as it has been for hundreds of years. Over time, it has gone through a number of technique modifications and improvements. However with the demise of academic forensic pathology internationally, little has changed in autopsy practice in modern times.

My Unit is unique in the UK as we still have an active research interest and output. At the moment, we have a research DNA laboratory here at the East Midlands Forensic Pathology Unit, currently with two main themes. The first is the development of a DNA identification system for deer. This is the only system of its kind that we are aware of in the UK. We have been working on this for several years and are near completion. We hope that this system will assist wildlife police officers in combating deer poaching. The second theme relates to the use of human DNA for the investigation of child abuse. We are considering the use of DNA transference to identify offenders from the injuries left. This is a long term project; we have had to consider the normal pattern of DNA found on the developing child from the carers and contacts before considering that left through intentional injury. We have an engineering project at the moment which is looking at trying to put the science behind things like force and penetration in relation to stab wounds. Finally, our largest area of research relates to the role of axial imaging (CT) in natural, unnatural and mass fatality deaths. Generally, radiological examinations are performed as part of the post-mortem in cases of suspected non-accidental injury in children, and in all deaths involving firearms or explosives. It is also used to examine badly burnt or decomposed bodies. We have been using CT since 2002 for the investigation of suspicious and homicide deaths. We have recently expanded this work to involve natural death and the role of CT in identification of the dead.

Figure 1 Image of Broken neck



3.4 To what extent is there a potential for inaccuracy in the work of the pathologist?

We may not get it right every time. One would hope however that the processes we have in place before the report reaches court will stop any inaccuracy ever getting to court and therefore influencing the outcome of court proceedings. That is your worst nightmare as a Forensic Pathologist; you do something wrong and put somebody in jail due to an error. When I came here in 2001, we instigated a policy of critical checking and, with the exception of personal letters and occasional minor documents, we have a policy that nothing comes out of this department that is not read by another person. Working in a group practice such as mine means that all the pathologists and trainees work from a single building which enables us to discuss casework between each other on a daily basis or at one of the two practice meetings each week – a review of the cases from the previous week’s meeting or the forensic imaging weekly meeting. In addition, each case is proof-read prior to being critically checked. Thus, hopefully, there is no diagnostic error. Virtually all autopsies are witnessed because we have at least one trainee with us at all autopsies, so one would hope that we don’t make an error. The second post-mortem performed on all homicide cases is a form of audit, but will only work if you do a

proper post-mortem again. If I do a second post-mortem, I do the whole thing again which may take me three or four hours. If you don't do it to that level, it's a pointless exercise. A second post-mortem does pick up errors from time to time. However I do virtually no defence autopsy work because I'm not going to charge the public for something that I don't agree with. Why, for example, do a second autopsy on a case with multiple stab wounds? If the case was done by a Home Office Pathologist and was documented in writing, drawings, photographs and even video or laser scanning as well as full body CT, what is the point? All of this information is open to review and most differences of opinion surround the interpretation of the findings, not the autopsy process.

3.5 Are there any cases you can identify where it has been difficult to draw evidence?

A stab wound, gunshot wound or a beating is straightforward. It is in fact the cases that are not usually done by Forensic Pathologists for example road traffic collisions, hospital deaths and industrial incidents that are often more problematic in relation to the autopsy and the interpretation of the laboratory tests and findings. I never understand why these complicated medico-legal cases are not conducted by those with specialist medico-legal training as they would be in the other parts of the United Kingdom and the rest of the world.

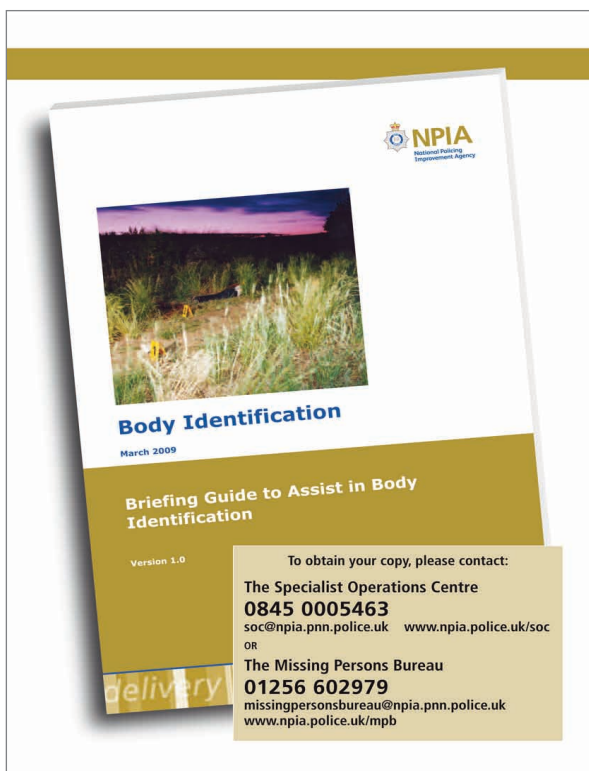
3.6 Why was it necessary to write a Body Identification briefing guide?

The way that a Forensic Pathologist examines a body means that they are undertaking the processes to assist with identification at every post-mortem examination. I thus have a very good working knowledge of the systems that are available to identify a body. Photos, facial reconstruction, iris recognition, external and internal soft tissue examination, teeth and DNA profiling can all assist in identifying bodies which have been decomposed, dismembered or are unsuitable for visual identification.

I was put onto the NPIA Working Group on Missing Persons and I listened, mainly to police officers, talking about how to identify a body. It became very apparent that there was a general lack of understanding on the systems that could be used. I made a point of saying that the first thing we need to do on this group is to have a nationally agreed guidance document, so that people know what is available. As a person who undertakes identification work every day of my life, I volunteered to write and update it. The group agreed, so I was commissioned to write the

document. This briefing paper was published by the NPIA in March 2009, and is available on POLKA¹.

Figure 2 Image of NPIA briefing paper on body identification



3.7 You were called out to Sri Lanka in the aftermath of the 2004 Tsunami to conduct Disaster Victim Identification (DVI). What lessons did you learn from this?

The biggest lesson learnt was the necessity to follow what was already happening in other countries, in having a dedicated DVI response team. The idea that you can just fly teams into a foreign country and they will gel and work together is wrong, because it takes days to adapt and get to know each other, by which time you could have finished and be going home. The UK now has a National DVI team (UK-DVI). Its members are trained in victim recovery, mortuary operations, forensic matching, and ante-mortem collection.

¹POLKA is the Police Online Knowledge Area available at <http://polka.pnn.police.uk>

3.8 As a Forensic Pathologist, is there any message you would like to give to SIOs reading this article?

Talking locally to the East Midlands, I wish to thank every single one of the police officers, all ranks, both in practice and retired, for their support of myself and my unit through their careers, because without them I wouldn't be where I am today. I also want to reassure the SIOs that we are trying to do our best, and the practice will be evidence-based, and we will continue to research new methodologies to enhance their investigation. To reassure them that the quality assurance of the service has dramatically improved over the years, and is certainly better now than at any other time.

3.9 What can SIOs do to facilitate your work?

The SIO is our customer. We listen to our customer and we provide to them the service at the standard that they want. If SIOs lose faith in us they should approach us. Don't go to an external agency because that doesn't do the relationship any good. If they want us to reconsider something, then talk to us. A good pathologist will listen, and either reassure the SIO or go away and reflect upon it. It's about a working trust bond, communication and listening - knowing your pathologist and acting as a true team for the very small bit of the investigation that we're involved in.

Don't be afraid to challenge your pathologist; ask them something that is at the back of your mind or ask questions, because the pathologist is a huge walking resource. For the junior SIOs, don't be afraid to tell us that it is your first case and we will go to one side and make sure that you are making the right decisions. We will help you rather than making you look like a fish out of water.

Also, I think that the pathologist can be integrated in the investigations in two more areas. At the end of the autopsy we commonly finish our involvement in a case until there is a case conference or trial. On significant cases, to go to the 08:00 briefing the next day to explain to the investigating team what has gone on would be quite good, to hear it from the horse's mouth. I've also never been to the post-case review. I know that forces review how the case went and how they can improve it; I've never been to one, but I would have thought that the pathologist and their service is actually quite an important part of that.

3.10 What does the future hold for Forensic Pathology?

At the moment there is a workforce problem. We continue to lose more practitioners each year than we can recruit, especially as it takes several years to train someone onto the list. We don't have enough trainees coming through because there are not enough registered training posts. The current trainees will not be completing their training until 2013. Thus, until 2013, all group practices are in the same position – if they lose staff they will find it very difficult to replace them. In 2013 there will be a mad scramble to employ those trainees that become available and then there will again be a period of time of several years during which recruitment will again be near impossible. Thus a long-term recruitment strategy needs to be initiated now. This is complicated as training places within accredited training sites are all currently full; one cannot simply create new training places due to strict national regulations related to training. There is also the issue of funding the posts in a recession. In short, it will be a significant problem for the next few years.

4 Conclusion

The processes used in forensic pathology - 'the investigation of deaths where there are medico-legal implications' - to carry out post mortems have not changed much in recent years. However, with the rapid development of research and technology in this field, including the production of instruments which deduce the degree of force applied from the nature of the wound, the level of innovation and analysis has become more acute and the scope for applications has become wider, as demonstrated by the launch of the deer DNA identification system. The results of this research could prove to be of huge value to SIOs in the future; however, with limited recruitment and training of forensic pathologists at present, the potential shortage in forensic pathologists to continue researching is worth considering. Finally, greater involvement of the forensic pathologist in the wider investigation, along with closer engagement with and scrutiny over the work of the pathologist by the SIO, may enhance the overall contribution pathologists can make in assisting with cases.

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