

3 Managing the Fingerprints

Introduction

- 3.1 The use of fingerprints to identify offenders is well established. The first fingerprint bureau was established within the Metropolitan Police at Scotland Yard in 1901. As the process evolved, such bureaux were introduced across the United Kingdom, so pioneering the police forensic approach to crime investigation.
- 3.2 National structures evolved with Scotland Yard holding the National Fingerprint Collection (NFC). The training of fingerprint officers was standardised and basic working practices for each fingerprint bureau developed along similar lines.
- 3.3 Although fingerprint evidence is often vital in major crime investigation, the majority of fingerprint work is concerned with volume crime. Therefore, it has an extremely important role to play in the detection and reduction of such crime. Forces recognise this and have invested in fingerprint analysis.



Current Situation

- 3.4 Until recently, forces relied on manual methods to identify fingerprints, resulting in searches being limited to locally held collections, and even in some cases to specific sections within the collection. The increasing mobility of criminals established the need to identify criminals across force boundaries. Computerised comparison of fingerprints has now been developed to assist in identification and has been introduced in various forms.
- 3.5 The first Automatic Fingerprint Retrieval (AFR) system, linking fingerprint bureaux, was introduced in 1992 by a consortium of forces and allowed searching of crime scene fingerprints against suspects' fingerprints held on the consortium database. Adopted by the majority of forces in England and Wales, this system enjoyed considerable success. In a later development, 12 of those forces introduced Livescan. Livescan allows immediate electronic capture of a suspect's fingerprints for comparison against fingerprints of known criminals on the AFR database. Subsequently prisoners' fingerprints may be searched against outstanding crime scene fingerprints on the separate crime scene mark database.

- 3.6 The National Automatic Fingerprint Identification System (NAFIS) is currently being introduced, linking all fingerprint bureaux of England and Wales by April 2001. This will enable forces to 'interrogate' the system by searching crime scene and suspect's fingerprints against a national database. The NFC is now being devolved to forces. Forces will keep a paper copy of the fingerprints, placing an electronic copy on the NAFIS database. Effective management of force collections and stringent quality control with auditing procedures will be required, both for the NFC and for the crime scene database.
- 3.7 In 1953 a quantitative standard was introduced to crime scene fingerprint identification. This standard, hitherto known as 'the sixteen point standard'¹, although lacking the force of law, was accepted throughout the Criminal Justice System as the benchmark by which all² identifications should be measured. It required sixteen points of similarity between fingerprint and mark to prove identification.
- 3.8 In 1992, under the direction of the ACPO Fingerprint Evidence Standard National Project Board, proposed changes to the recognised identification standard were examined and agreed by ACPO. They involved the removal of the numeric standard, with each fingerprint being subject to examination by an expert who would provide an opinion as to whether a positive identification is made or not. There could, therefore, be more identifications in the future with fewer than sixteen points of similarity.
- 3.9 This likely change will inevitably create implications for training. More forces than not have appointed training officers to address the consequential training needs of bureaux staff. Further training will be necessary for Chemical Treatment Unit (CTU)³ staff and SOCOs themselves, and common sense suggests that the training be brought together under the same trainer(s). The training is a necessary investment, but has caused difficulties in some forces where fingerprint experts who have become trainers have not been replaced.

¹ Each fingerprint identification must provide at least sixteen points of comparison between the crime scene fingerprint and the fingerprints of the suspect.

² There are two exceptions where the number of points is reduced to ten points in each of two different fingerprints, and in serious crimes it has been reduced to eight points in stated cases.

Point of Note

Devon and Cornwall acknowledge all identifications (full and partial) made by the Fingerprint Bureau. They inform the investigating officer that an identification has been made. It is then the decision of the officer as to whether to use the evidence. If they decide that it is to be used as evidence the Bureau is willing to produce a statement for court use. To date the Bureaux have experienced no adverse effects from this policy, which has been in use for a number of years.

³ The Chemical Treatment Unit function is described in paragraph 3.10

Processes

- 3.10 The raw materials of a fingerprint bureau are the fingerprints recovered and supplied to it. Crime scene fingerprints or marks are generally recovered by SOCOs who attend such scenes as are determined by force policy. These fingerprints are located by the application of fingerprint powders. Many items are not suitable, however, for such treatment. These items can be subject to a variety of chemical processes and enhancement techniques designed to locate fingerprints. To perform this they are recovered from the scene to a unit known in most forces as the CTU. The majority of

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fingerprints, recovered by whatever means, are also processed through force photographic departments so that fingerprint officers can work from photographs rather than the actual fingerprint.

- 3.11 Fingerprints are identified by speculative searching against fingerprint collections or by direct comparison with a nominated suspect. Once an initial identification is made, it is subject to confirmation by two further fingerprint officers, in accordance with ACPO guidelines. Of the three officers involved in the checking process, two must be registered fingerprint experts.
- 3.12 The impending likely departure from the sixteen-point standard will have an impact on all those working in the forensic field, particularly SOCOs and those in the CTU. It is essential that they understand the implications of the non-numerical standard. Fingerprints recovered from scenes vary in quality and clarity of detail. The move away from the tradition of the sixteen-point standard is intended to allow an expert to provide evidential identification of fingerprints previously deemed to lack sufficient detail. In consequence the workloads of all SOCO, CTU, photographic departments and fingerprint bureaux will increase significantly.
- 3.13 The present requirement for three fingerprint officers, two of whom must be experts, to prove each identification was claimed by some fingerprint officers to be bureaucratic and burdensome. This will obviously not lessen with the change from the numeric standard and it is likely that the amount of work involved will increase. It is tempting to recommend a change away from this system because of the increase of work for existing fingerprint experts. However, full confidence in the identification system needs to be maintained while this change is taking place and now is probably not the time for a radical move. At some future point circumstances might make it easier to consider a move from the present system.
- 3.14 Of the 38 forces responding to the joint ACPO/HMIC/FSS audit, 23 had a fingerprint audit process in place and 15 did not. This, however, is very much a moving picture as forces develop processes in preparation for the change from the 16 point standard. What is perhaps of more concern than those forces still developing audit processes, is that about half of those claiming presently to have a process stated that it was simply part of the day to day supervisory function. Her Majesty's Inspector does not have confidence that this is adequate and believes systems capable of external verification to be necessary. This view is shared by the ACPO Fingerprint Evidence Standard National Project Board, who saw such an approach as necessary to withstanding critical challenge. Her Majesty's Inspector urges forces to introduce such an audit system without delay within the fingerprint processes.

Structures

- 3.15 The majority of fingerprint bureaux form part of the of the Scientific Support Unit (SSU) headed by the SSM. The bureaux themselves are headed by a bureau manager and staffed by fingerprint experts, trainees and support staff.
- 3.16 Effective team working is dependent on the quality of the relationship between the SSM and the head of bureau, and that quality will be measured by the effectiveness of the communication between the two. The inspection found that in some cases the communication was poor.
- 3.17 In one force, for example, the SSM and the head of the fingerprint bureau rarely communicated. The head of bureau communicated directly with an ACPO officer. Whilst Her Majesty's Inspector welcomes the interest of the command team in these matters, that interest should foster the communication between the SSM and the head of bureau, and not, however unwittingly, become a substitute for it.
- 3.18 Many fingerprint officers did not consider that their contribution to the investigative process was appreciated and they felt isolated from the rest of the force. One fingerprint officer said:

"We are very much in our own little box"

- 3.19 Her Majesty's Inspector found West Midlands Police had introduced a system of SOCO attachments to the bureau in an effort to enhance the team ethic. This appears to be producing results. A quote from a fingerprint officer was that, "We did not feel part of the process, but do now." Her Majesty's Inspector is supportive of this action and believes that, when structured, the interchange of personnel can bring benefits to the investigative process, helping to remove any invisible barriers or misconceptions.
- 3.20 It is appreciated that operational demands on SOCOs could preclude such initiatives. However, there is a need to recognise an horizon beyond the immediate. If there is a lack of understanding of roles and respective problems, as was found in some forces, individual activity in itself will not produce the necessary efficiency.
- 3.21 Historically the science of fingerprints developed separately from other forensic processes. Understandably this separate development has led to a failure of some to acknowledge the reciprocity of roles within other scientific disciplines. The fact, is however, that they are drawn inexorably together and this fusion should be acknowledged as progress. Some forces have already acknowledged this reality by placing the different disciplines under one head. For example, some forces have

Point of Note

Apocryphal information is given by a number of forces that, by allotting geographical responsibility (e.g. areas) to fingerprint officers, the quantity of identifications per officer increases.

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placed the CTU under the leadership of the head of the fingerprint bureau. The trend to brigade a force fingerprint bureau and its CTU under one head is welcomed by Her Majesty's Inspector. More relevant standards of quality and timeliness alongside more appropriate deployment of staff are most likely under the leadership of one individual.

Performance

- 3.22 Volume crime offenders tend to commit large numbers of offences over short periods of time. If such offenders' fingerprints are recovered by SOCOs the speed with which they are identified has a direct effect on preventing the commission of further offences by interrupting the cycle of offending. Therefore timely procedures within the entire evidence chain are of paramount importance. The inspection found evidence of delays in process due to:
- ❑ Staffing – failure to review CTU staffing levels as workloads increase (in one force delays were said to be up to three months).
 - ❑ Bureaucracy – awaiting crime reference numbers was delaying submission of fingerprints (three months or longer was not unusual).
 - ❑ Refusal to examine scene fingerprints until elimination fingerprints had been received.
- 3.23 If the crime reference or elimination prints do not arrive in the fingerprint department for any reason then many identifications may thus be lost. In one force, for example, 30% of crime scene fingerprints were not being examined for this reason. Her Majesty's Inspector is of the view that this is as unacceptable to victims of crime as it is to him. It should be unacceptable to police managers.
- 3.24 It was evident that in relation to fingerprint matters forces assembled quantities of data. Consistent with other parts of the inspection, data concentrated on activity and did not extend to outcome. For example, some forces were unable to trail the ultimate product of a fingerprint identification. This will be further examined in Chapter Four.
- 3.25 The police service has accumulated substantial experience of the benefits of Service Level Agreements (SLAs). Such agreements should delineate the reciprocal responsibilities and expectations between providers and customers. In simple terms, the parties know where they stand, what they can expect from each other, and have a joint foundation for improvement. The inspection examined a range of SLA, but found little evidence that the learning experience of SLA in general had extended to the client/provider relationship of this investigative activity. Essentially, most SLAs provided little more than a descriptive statement of bureau business. This does not clarify the relationship between the parties and consequently cannot drive

performance. Properly constructed SLA are a vehicle for improving the quality and timeliness of the particular service.

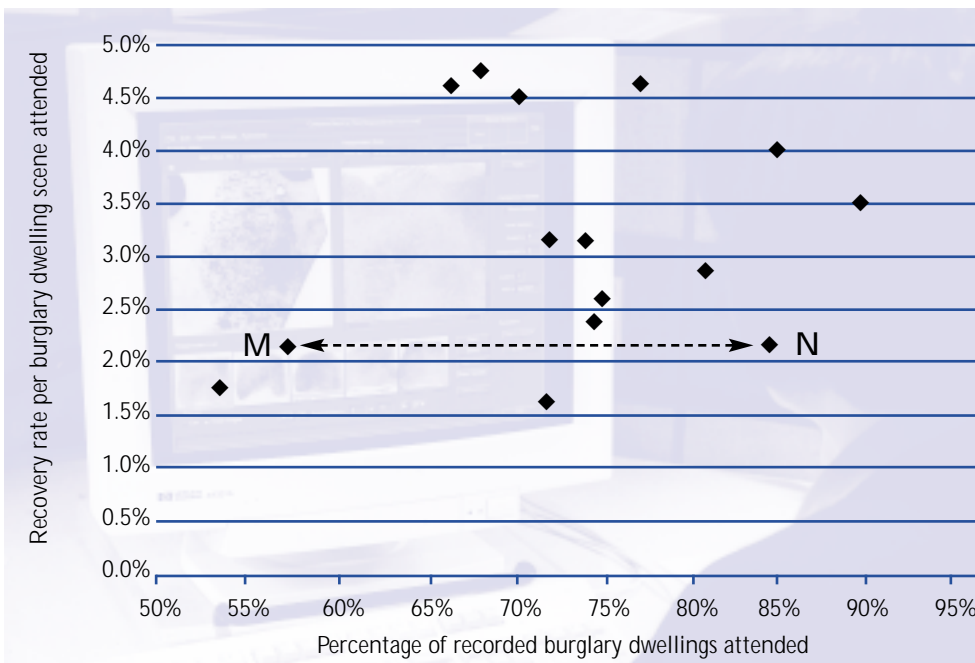
RECOMMENDATION 6

3.26 Her Majesty's Inspector recommends that forces establish properly constructed SLAs between fingerprint bureaux and investigators.

Data examination

3.27 Data is available from 15 forces that provided information to the national performance indicators regarding scene attendance and recovery rates for burglary dwelling. See Figure 8.

Figure 8: Burglary dwelling – fingerprint recovery rate vs. attendance rate



3.28 The following conclusions may be reached within the constraints of the data provided.

3.29 Figure 8 shows in force M approximately 58% of the burglary scenes are attended by SOCO and the recovery rate for fingerprints is about 22%. Force N recovers the same proportion of fingerprints whilst attending 84% of burglary scenes. There is no correlation between the percentage of recorded burglary dwelling scenes examined and the recovery of fingerprints from those scenes.⁴

⁴ Force M is a metropolitan force with a ratio of one SOCO per 519 burglary dwellings. Force N is an urban/rural mixed force with a ratio of one SOCO per 355 burglary dwellings.

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- 3.30 Therefore forces could expect to increase the number of fingerprints recovered from burglary dwelling scenes by attending all such scenes. The current ratio of identifications to scene visits is 1:18.
- 3.31 It is clear that the present approach to pre-selection of scenes to be visited by SOCOs, whilst providing a regulator on SOCO workloads, cannot be rationalised against the facts and identifications are being missed by default.
- 3.32 The conclusion reached from the data is that the more scenes attended by the SOCO, the more fingerprints recovered and this leads to more identifications. This calls into question any policies mediating against SOCO attendance.
- 3.33 This conclusion supports similar findings in relation to DNA recovery at scenes as discussed in Chapter Two and reinforces Her Majesty's Inspector's recommendation on scene attendance policy.

Point of Note

Cambridgeshire invested in a computerised palm printing system that was bolted onto the AFR system. Since 1997 all usable palm-prints taken from prisoners are searched against their AFR system and to date it reports that 315 cases have been detected. Currently this is not compatible with NAFIS and therefore it will be used as a stand-alone system.

Palm Marks

- 3.34 It is generally accepted that palm marks are recovered from 20% of crime scenes examined. There is currently no facility available on NAFIS to speculatively search palm marks. A valuable source for the identification of offenders is therefore not being realised. Avon and Somerset Police and Cambridgeshire Constabulary are developing stand-alone computer systems pending a NAFIS system becoming available. Her Majesty's Inspector believes the need to introduce such a facility countrywide should be regarded as urgent. This would provide an additional aid to the reduction of volume crime.

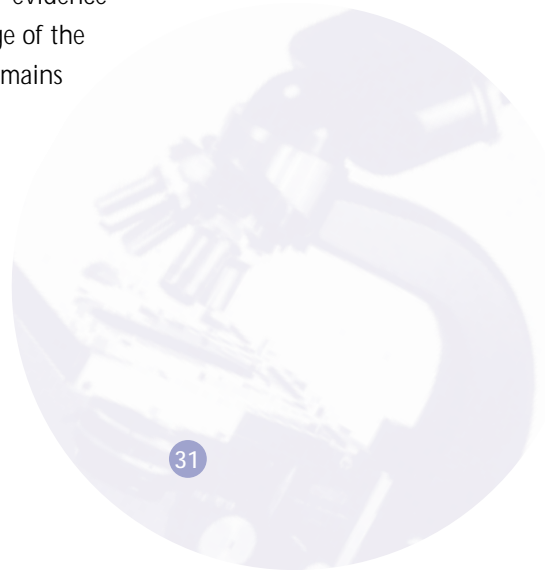
Conclusions

- 3.35 Fingerprint identification proved to be a primary source of detection throughout the last century. It will remain a continuing and substantial source of identification for the foreseeable future. The introduction of a properly resourced NAFIS system, and the revision of the necessary ingredients of an individual identification to reflect contemporary thinking, together provide the opportunity to capitalise on both new technology and existing expertise.
- 3.36 The service as a whole, and individual forces, will fail to benefit from all the potential future benefits unless existing processes, procedures and cultures are rationalised. The inspection has found that some procedures, whatever the rationale of their origin, are obstacles to improved performance. Audit trails are elusive and tend to stay short of the crucial measurement of outcome. It is important that forces themselves and fingerprint professionals ensure a joint effort where fingerprints are part of a total assault on volume crime.

4 Managing the Identifications

Introduction

- 4.1 DNA and fingerprint identifications jointly present the police service with the most significant scientific opportunity for impacting on volume crime. The inspection revealed problems that are common to both.
- 4.2 There is a perception across the police service that some identifications, once notified to BCUs, disappear into a 'black hole' and are not acted upon. This is difficult to believe particularly when the current emphasis on crime reduction and good performance indicators is so strong. The process of obtaining relevant samples and establishing the identity of a perpetrator is not inexpensive. The essence of the identification is the provision of incontrovertible intelligence and evidence. Failure to follow through that identification is inherently wasteful and denies victims the residual satisfaction that perpetrators have been dealt with.
- 4.3 Government, encouraged by the success of DNA as an aid to investigation, has invested substantially in the expansion of the NDNAD. It has also invested in fingerprint systems. The proven efficacy of the two methods of identification, the commitment to secure the optimum value for money from the investment and the ongoing need to put victims first, provide a cogent and overwhelming case that the police service must exploit the evidence that the disciplines produce. This places a heavy responsibility on the service to ensure that all such evidence is used to its fullest extent.
- 4.4 This report has already commented on aspects of the collection of DNA and fingerprints from scenes of crime, in particular burglary of dwelling houses. Further the report suggests the appointment of scene of crime assistants to gather evidence regarding motor vehicle crime. Any benefits or improvements at this stage of the identification process, no matter how important, will be thwarted if it remains a matter of conjecture whether an ultimate identification is actioned for investigation.
- 4.5 The findings of this inspection are supported by the conclusions of the National DNA User Group's evaluation of the use of DNA. The primary conclusions of the latter study in relation to volume crime, which embraced a wider range of offences than this inspection (all burglary, vehicle crime, criminal damage and other theft), were:



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- (a) On average every identification leads to 1.4 detections.
 - (b) Where identification resulted in a detected crime, DNA was regarded as being essential in 73% of those cases.
 - (c) A robust and effective process is required to deal effectively with the collection of samples and the processing of the identifications.
 - (d) Timeliness in the processing of DNA samples is key to success and creates a benefit in terms of detections.
 - (e) Further benefits accrue as a result of increased awareness by investigators of all aspects of the use of DNA.
- 4.6 Whilst the findings of the User Group study are concerned with DNA, this inspection revealed that the observations are equally valid in relation to fingerprints. Points (a) and (b) above are matters of fact, whilst points (c) to (e) are issues that forces need to address in relation to both DNA and fingerprints.

Processes and procedures

- 4.7 For DNA and fingerprint evidence to be used successfully as an aid to investigation, processes need to be in place to ensure that:
- Forensic evidence is collected and submitted for examination quickly;
 - Once identifications have been made as a result of forensic evidence, follow up investigations are conducted efficiently.

The Identification Process

- 4.8 In 1997 ACPO published a good practice guide¹ which aimed *“to ensure that for every item of scientific intelligence received, we create a record, develop the intelligence, take positive action and finally, but importantly, ensure that our records are properly updated to reflect the detection status of the crime”*.
- 4.9 In contrast with this stated intention, the ACPO/FSS/HMIC Forensic Audit of forces in December 1999 concluded that;
- 62% of forces were unaware of how many primary detections resulted from their DNA identifications.
 - Only 15% had procedures for evaluating the benefits, in terms of detection or value for money, obtained from the identifications.
- 4.10 All forces should be able to measure the benefits that derive from the recovery of DNA. Forces do recognise the cost of recovering samples for analysis but in the majority of cases have no mechanism for evaluating the success or otherwise of their policies as they relate to the recovery of DNA.

¹ ACPO Good Practice Guide – Taking Action in Respect of Identifications from DNA, Fingerprints & SICAR 1997.

- 4.11 Force visits included examination of the systems and procedures that were in place to process and manage suspect identifications for burglary dwelling and vehicle crime. All identification notifications were received at a central point within each force. Her Majesty's Inspector noted that the majority of forces had mechanisms in place that could provide additional or updated information on initial receipt of the identification. These included,
- A copy or details of the current crime report.
 - Checks to ascertain the progress of other submissions or retrievals.
 - Checks to ensure that the DNA sample is legally held.
 - Intelligence research on the suspect and consideration of links to other crimes, suspects and associates.
- 4.12 An examination of DNA identifications in forces visited found that overall in 10% of cases of identification there was no evidence notified of any resulting enquiries having been conducted. In other words, the FSS notified forces of matches between an offender and a scene but no evidence of any follow up enquiry could be found by the inspection team in one in ten of identifications. It should be said that performance in this regard of forces visited differed substantially, with some forces performing much better than others by virtue of their more rigorous systems of notification, checking and supervision. If an average size force (3000 officers) did not action 10% of its identifications, this would represent approximately 36 individuals. Nationally a 10% rate would amount to 1900 identifications being lost. This cannot be a precise figure but the implications for the service of any such loss are significant.
- 4.13 Visits to forces revealed a similar pattern in respect of fingerprints, with 6% of identifications apparently not being actioned. Overall the number of fingerprint identifications is higher than that of DNA, therefore the number of identifications possibly going without further investigation in an average force could be 40 annually. Extrapolation suggests that a possible 3800 identifications across England and Wales are not being actioned.
- 4.14 Potentially, therefore, as many as 5700 offenders who might not have been properly processed are linked conclusively to specific offences. A large proportion of volume crime offenders are recidivist in nature and some are prolific in their offending behaviour. The failure of the service to act on these identifications is a failure to prevent a significant proportion of volume crime and unnecessarily inflates the number of victims. The black hole does indeed exist.



Managing the Identifications

- 4.15 The failure to respond positively to this problem is compounded by resources being unnecessarily wasted on unproductive tasks. A number of examples were found where unnecessary processing of forensic evidence occurred due to a lack of information being made available on various databases regarding the resolution of the crime. There is no point in submitting samples for crimes already detected by other means. Some 16% of the identifications examined during the inspection related to cases that had been finalised prior to notification of the identification. This is sometimes inevitable, but there should be systems in place to stop forensic examination continuing when a case has been resolved by other means.
- 4.16 In half the forces there was a significant number of identifications, both DNA and fingerprint, which did not relate to any recorded crime. In one case the figure encountered was 10%. Recognising that this is a waste some forces will not allow submission for DNA analysis unless a crime number is attached (similar comment was made in regard to fingerprints).
- 4.17 The inspection found numerous instances where suspects should have been dealt with when in custody for other matters. Failure to update the records of investigation has led to the same individual being arrested on multiple occasions or interviewed in prison when the outstanding matter should have been dealt with on first arrest and prior to sentence. This waste and inefficiency is self-evident and not in the interests of any part of the criminal process, including the offender himself.
- 4.18 The inspection diagnosed two contributory causes for such failures in DNA and fingerprint identifications. First, a failure of systems to ensure that the proper action is taken on receipt of an identification. Most forces visited did provide a means for officers to notify HQs on the progress and result of enquiries involving identifications, with the majority providing a results proforma for written updates on progress. The return rate of these results proformas was less than 40% across all forces and little evidence was found on a systematic follow up of the missing 60%. Second, therefore, the overriding source of failure is centred on individual human error and/or poor supervision.

Timeliness

- 4.19 There are two aspects to this very important issue:
- Timely submission of forensic evidence.
 - Timely investigation once identifications are received.

Timely Submissions

- 4.20 To be effective as an aid to investigation evidence is required quickly, the clock starting at the commission of the offence. Failure to act quickly can result in:
- ❑ Forensic evidence being lost or destroyed.
 - ❑ Offenders continuing to offend.
 - ❑ Other evidence being lost.
- 4.21 In addition, there are cost benefits to be achieved in early submission and arrest. One study² of the effects of timeliness on DNA processing concluded that there is evidence of a substantial reduction in:
- ❑ Cost per detection
 - ❑ Cost per conviction
- when the turnaround times are kept to a minimum.
- 4.22 Another, unpublished, in-force study which considered the time spent between collection of the DNA sample and final analysis indicated that on average 51% of the time was spent in force. The inspection identified two causes for such delays:
- ❑ Awaiting the outcomes of other evidence types, e.g. the examination of fingerprints recovered at the same scene, to reduce cost of DNA analysis as discussed in Chapter 2.
 - ❑ Time consuming authorisation system – generally this was caused by bureaucracy rather than deliberate policy to delay submissions.
- 4.23 The inspection found that, in some forces, policy dictates that other methods of identification, e.g. fingerprints, must be exhausted before submitting DNA for analysis. Cost of DNA analysis is put forward as the reason for this approach. There is an understandable belief in some forces that there are fewer costs associated with the development of fingerprint evidence. Costs for DNA analysis are obvious in that each time a submission is made an invoice is received for payment. Costs associated with fingerprints are hidden to the extent that they have already been accounted for in staffing costs with no outflow of money to pay for analysis. However, like is not being compared with like, because methods of accounting vary. Full cost benefit analysis of both DNA and fingerprints may soon be possible provided accurate national data can be collected.
- 4.24 Whilst Her Majesty's Inspector acknowledges the reasoning behind policies to delay DNA submissions until other, apparently less expensive, avenues are explored, he urges forces to think widely about costs and to question constantly the basis on which these policies are made.

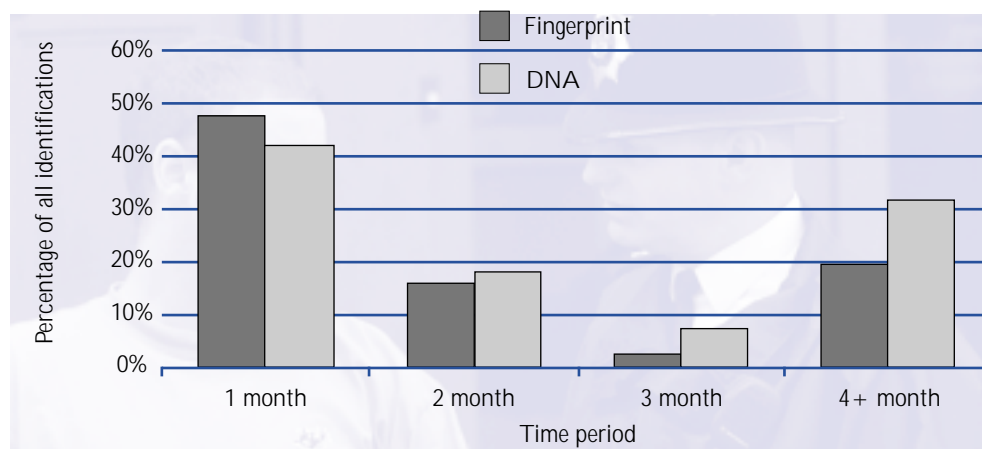
² 'Identifying the Effects of Timeliness of DNA Crime Stain Analysis on Resultant Detection' Martin Gaule, Sussex Police, 1999

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Timely Investigation

4.25 The inspection found evidence in the forces visited that once identifications had been allocated for investigation there often appeared to be long delays in achieving an outcome. Figure 9 below indicates the time taken to progress the identifications examined in detail in this inspection. The inspection team attempted to take full account of the fact that some enquiries cannot be quickly resolved, for example where a suspect deliberately evades capture. And there may also be other reasons for long delays, but the chart below and the examples supplied do give some grounds for concern.

Figure 9: Timeliness resolution of fingerprints and DNA identifications



- 4.26 The following are examples of some not uncommon delays found during the inspection:
- A lapse of five months between notification of an identification and allocation for investigation.
 - A lapse of six months before any details of the investigation were recorded on the Crime Information System.
 - A five-month gap between a supervisor's request for update on an identification and an update being recorded.
 - A lapse of over nine months between an identification and a valid result being recorded.
 - A suspect was arrested on identification and bailed pending an evidential submission; no further action occurred in a nine-month period.
- 4.27 Occasional lapses can be found on inspecting any system in any organisation; far too many were, however, found in this examination of timeliness of investigation activity.

Conclusion

- 4.28 The inspection identified a number of fundamental issues that the service needs to address with some urgency in relation to the management of DNA and fingerprint identifications. Timeliness in submission of samples can impact upon the eventual quality of the evidence obtained, as well as having the potential to impact upon the costs of investigations. Failure to deal promptly with identifications allows offenders to remain at large continuing to commit crime.
- 4.29 Evidence that DNA and fingerprint identifications are not being acted upon is a major concern. Such concern needs addressing as a matter of urgency if crime reduction is to reap the full benefits from the major investment by government. The service has the means to bring to justice many more offenders in the future provided it positions itself to exploit the sciences to the full. Regrettably it is not yet in that position.

RECOMMENDATION 7

4.30 Her Majesty's Inspector recommends that chief officers immediately ensure that they have in place processes for dealing with:

- ❑ Timely submission of DNA samples and fingerprints.
- ❑ Recording of details relating to identification of DNA and fingerprints.
- ❑ Investigation of DNA and fingerprint identifications.
- ❑ Supervision of such investigations to ensure they are completed expeditiously.

And where those processes already exist, review and fully implement them.



5 Managing the Footwear

"There is no branch of detective science that is so important and so much neglected as the art of tracing footsteps" (Sherlock Holmes: A Study in Scarlet)

- 5.1 Fiction provides a thin veil over fact. The quotation broadly reflects the current position regarding footwear evidence across England and Wales. The inspection studied the collection and use of footwear evidence, its potential contribution to the investigative process and its potential impact on the reduction of volume crime.



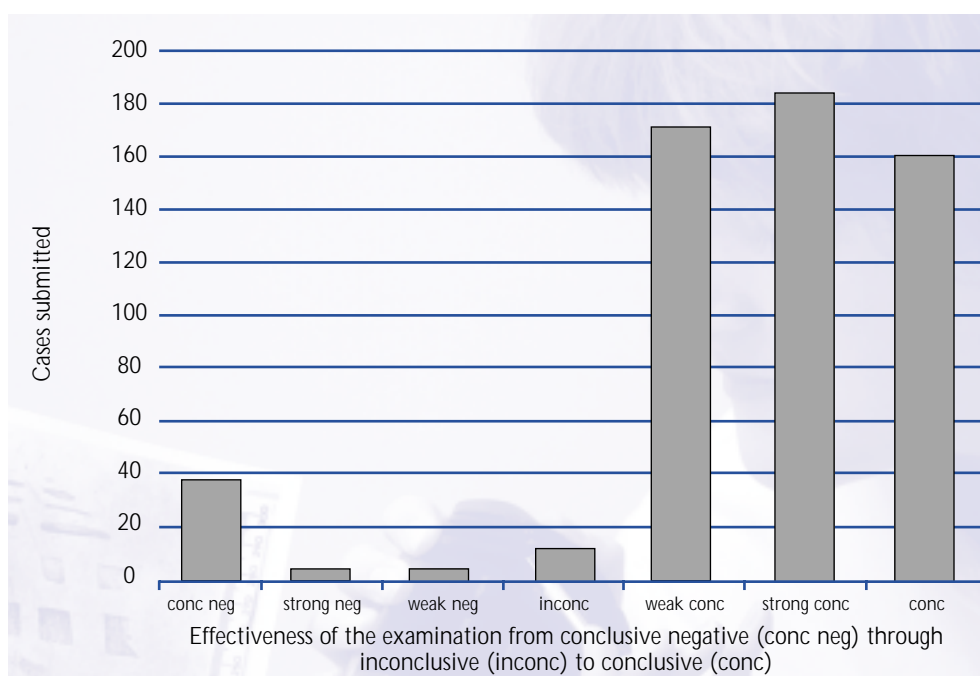
Overview of Current Situation

- 5.2 Forces are at different stages of development in dealing with footwear evidence. It is understandable that such evidence has not assumed a similarly high profile to fingerprint and latterly DNA evidence. The use of fingerprints to detect crime is well established, with a recognised national fingerprint collection. Similarly a national DNA database has been established. The benefit to crime detection of these two databases has been acknowledged by specific investment and intended standardisation of practice. In contrast there is no national or standardised approach for the management of footwear evidence.
- 5.3 The reason for this difference is not hard to see. A person with a criminal record leaving behind fingerprints or DNA at a crime scene has, if these are recovered and processed correctly, every chance of being identified. If the evidence does not identify an individual on the existing databases, then it is classified and stored. Identification can be made many years later if a person enters the system because of other criminal behaviour.
- 5.4 If the only evidence recovered is a footwear impression, then the probability of identification is much lower. Suspects cannot change their fingerprints or DNA but frequently change their shoes. If they keep the same footwear then it will change over a period of time through wear. Therefore a footwear mark left at the scene of a crime has potential evidential value for a limited period because the shoe that made it will change and may even be destroyed.
- 5.5 Footwear evidence has fallen under the shadow of DNA and fingerprints. The fact that it is subordinate to the major identification methods does not mean it lacks intrinsic value capable of being exploited by the service. The potential of a footwear

mark left at the scene of a crime has long been recognised as a source of evidence and intelligence, with SOCOs trained to locate and recover footwear evidence. Marks sent to the FSS can produce highly effective examination results as shown in figure 10.¹

¹ Statistics supplied by Forensic Science Service.

Figure 10: Outcomes of footwear marks submitted to the FSS from burglary dwelling scenes April 1999 to March 2000



5.6 The value of footwear evidence was recognised in UFSE and ACPO has supported that view through its Crime Committee, National Scientific Support Steering Group, Footwear User Group (FUG), whose aim is 'to maximise the contribution of footwear examination to the investigation, detection and reduction of crime'.

- 5.7 FUG has assisted in the production of:
- A manual of recommended scene examination techniques.
 - ACPO Guidelines on Footwear Image Capture relating to the taking of covert impressions from prisoners.
 - A detailed survey of forces' current position on usage of footwear evidence and systems during 1999.²

Policy and Strategy

5.8 The FUG survey conducted in 1999 indicates that only 16 forces have a policy document in relation to the collection of both scene and prisoner

² 60 questionnaires posted to police forces in England, Scotland, N Ireland and The Channel Islands. The Metropolitan Police areas were treated separately. 46 replies were received.

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³ ACPO Footwear User Group Survey.
From minutes of meetings of National
Conference of Scientific Support 20/21
May 1999

footwear marks.³ Forces need to have clear and measurable objectives for intended achievement from footwear evidence and equally clear policies to facilitate the achievement of those objectives. This approach should naturally fit within a Scientific Support strategy.

Systems

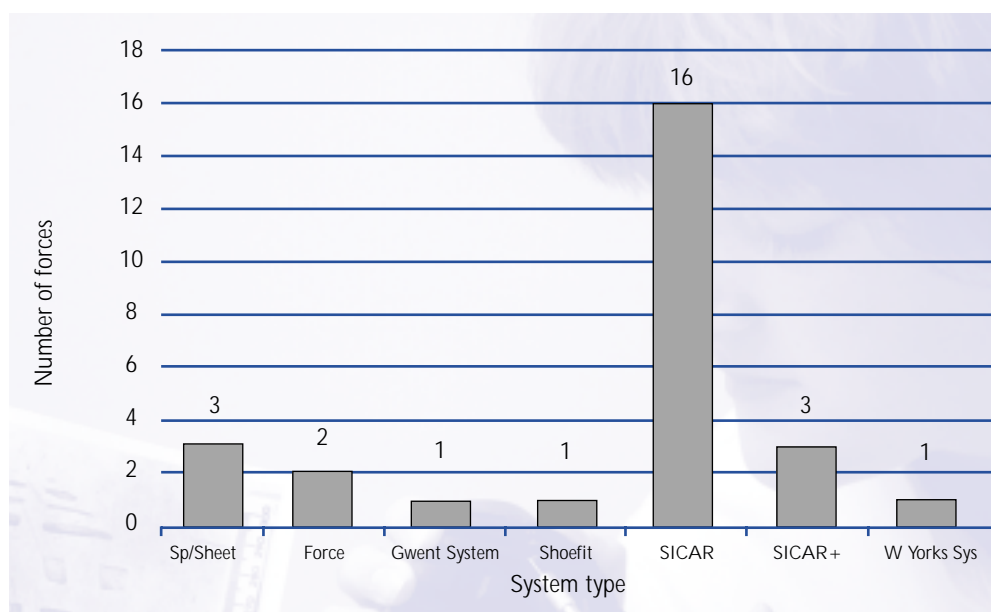
- 5.9 To maximise the use of footwear evidence a local database or collection of scene marks (and dependent on the system chosen, suspect marks) is required to provide scene to scene links and scene to suspect links.
- 5.10 Her Majesty's Inspector has seen a number of different methods in operation in forces visited.
- The use of commercially manufactured computer systems, e.g. SICAR (Shoeprint Image Capture and Retrieval) or software development within forces to run on existing hardware, e.g. SHOE-FIT (Surrey), SHOEMARK (West Yorkshire).
 - The use of locally developed manual or computer based systems that tend to include individual methods of coding or data extraction, making them unique to the system designer. They may operate force-wide but examples operating at BCU level were found.
 - Local collections of recovered scene marks usually held within Scenes of Crime Offices. Individual scene marks are circulated to investigating officers and may also be displayed at various sites within local police stations on an ad hoc basis. They are not subject to any formal analysis in terms of intelligence or comparison against suspects' marks.
 - The use in force of a suitably qualified footwear expert in conjunction with computer systems.
- 5.11 Within the variety of systems there are two broad approaches:
- Access to current data on recovered scene marks while a suspect is in custody allowing immediate examination of a suspect's footwear for matches. An informed decision as to seizure can be made preventing the suspect walking out of the police station with the evidence. This approach does not require taking covert shoe marks from prisoners. These systems are commonly referred to as "Realtime" systems.
 - Comparison of scene marks with covert marks collected from prisoners who will generally be released from custody along with the footwear. Subsequent wear to the shoe may be an issue. In the case of a scene mark recovered some weeks after the covert mark was taken it is unlikely that any pattern match will be confirmed without examination of the shoes themselves. Officers can be left with the problem of deciding if an arrest is valid on a pattern match alone.

- 5.12 In all of the systems (with the exception of one which utilises a forensic expert in force) any possible matches that need translating into evidence for use at court have to be subject to confirmatory examination by a footwear expert.
- 5.13 Detailed inspection of six forces proved illustrative of the variety of systems operating across England and Wales: it is apparent that there is increased interest in "Realtime" systems.
- 5.14 Figure 11 illustrates the variations in computer systems across the country in May 1999, though the picture is slowly changing. The West Yorkshire and Shoefit systems are "realtime".

Point of Note

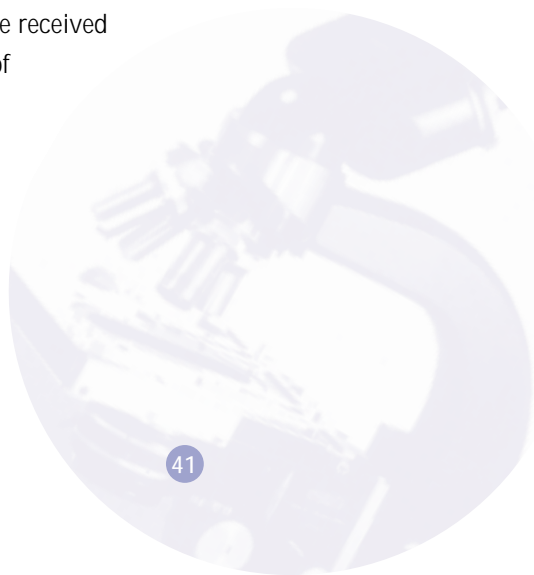
Lancashire Constabulary employs a forensic scientist who has established a footwear system within force. This person screens all footwear cases prior to submission to the FSS. Lancashire has the highest submission rate of footwear marks to the FSS. Because of the in-force screening nearly all of its submissions result in conclusive or strongly supportive evidential statements. In essence they are submitting a higher quantity of high quality marks.

Figure 11: Type of computer used for footwear system (May 1999)



Awareness/Training

- 5.15 The successful operation of a footwear system requires trained staff and good processes. It requires that officers first attending the scene of a crime have received sufficient training to locate, evaluate and understand the forensic value of footwear marks.
- 5.16 Her Majesty's Inspector was concerned to find that the level of forensic awareness training in footwear marks given to front line officers was regarded by officers themselves to be minimal. Some officers interviewed had received no such training since their initial police training. One comment by an officer sums up the perceptions of most:



Managing the Footwear

'Everybody thinks fingerprints. Footwear is an add on.'

Footwear evidence did not feature as a high priority in the thinking of many officers as a method of detecting offences. Even in forces operating a footwear system knowledge of its potential benefits varied greatly.

- 5.17 The inspection found SOCOs were well trained and had a positive attitude towards footwear evidence, especially in forces operating a footwear system, but they were often frustrated because of a lack of systems in force to properly capture and compare the evidence.
- 5.18 The collection of covert marks⁴ from prisoners for comparison against scene marks requires knowledge of force policy and compliance. In one force there was a policy of taking covert marks but the compliance rate varied widely. It was suggested by some officers that the footwear system was not held in high regard as they had never had any success with it. In fact a number of successes has been achieved. This emphasises the ongoing need to highlight successes to operational staff by all possible means if they are to continue to use systems.
- 5.19 There are benefits in technological reminders to take impressions, such as Devon and Cornwall's computerised custody office system. A prompt is generated to the custody sergeant to check that the investigating officer has taken footwear impressions, where appropriate, prior to the release of the prisoner.
- 5.20 Forces intending to introduce a footwear system should therefore consider not only the efficacy of the system itself, but all of the training implications. Introducing a system is pointless unless it is known about, trusted and used.

Performance

- 5.21 The inspection attempted analysing data to assess the added value of the collection of footwear evidence. It is reasonable to assume that the greater the emphasis on gathering footwear evidence, the higher the number of forensic laboratory examinations required. The available data confirms this premise but, regrettably, discrepancies in the collection of data were an obstacle to detailed analysis.
- 5.22 The real value of a footwear system cannot be ascertained by counting submissions to a laboratory alone. Contributions to intelligence, through linking scenes or adding strength to suspect interviews, are often just as important in establishing added value. The varied approaches to data gathering concentrated on activity measures. The utility of such information to management, particularly when

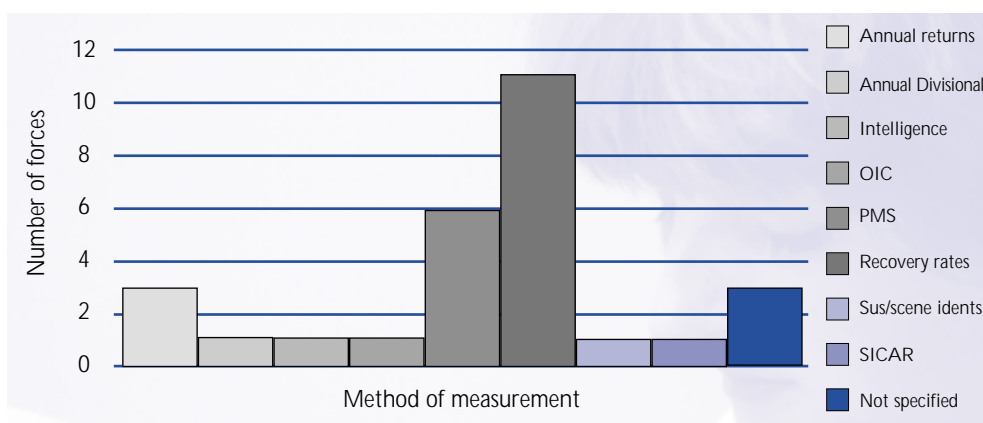
⁴ Obtaining an impression of the footwear of a person without their knowledge whilst in custody

accessible at BCU level, is not underestimated. However, such information is far short of measuring the effectiveness of any particular system.

5.23 Her Majesty's Inspector accepts that a move from the counting of activity to real assessment of value presents a significant challenge. In line with the stated intention of the ACPO (FUG), the service should respond to that challenge and establish meaningful measures of the contribution of footwear evidence in the totality of the effort against volume crime.

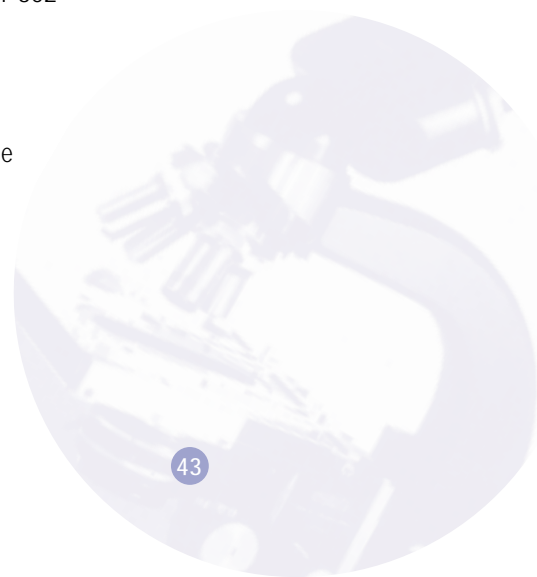
5.24 Of the 60 forces across the UK surveyed by FUG, 44 forces replied that they collected footwear marks. Of those forces, 16 did not measure performance in any way. Those that did measure performance did so by the means shown in Figure 12. As can be seen, these related predominantly to activity levels.

Figure 12: Methods of measuring footwear performance



5.25 The West Midlands Police uses some outcome measures. Return sheets are attached to the potential footwear links made. Investigating officers are asked for data from officers on offences detected as a result of the footwear evidence. The return rate was said to be 75% and the figures provided to Her Majesty's Inspector indicate that, in a three year period, the footwear evidence supplied accounted for 302 detections, including offences taken into consideration.

5.26 In one sector in North Yorkshire Police, a locally based system had been developed and was operating under the direction of a crime analyst in the intelligence unit. The computer-based system relies on comparing scene marks with covert marks from prisoners and is being used to target and detect burglary offences. The analyst nominates local offenders who are thought to be active burglars and an entry is made on the respective

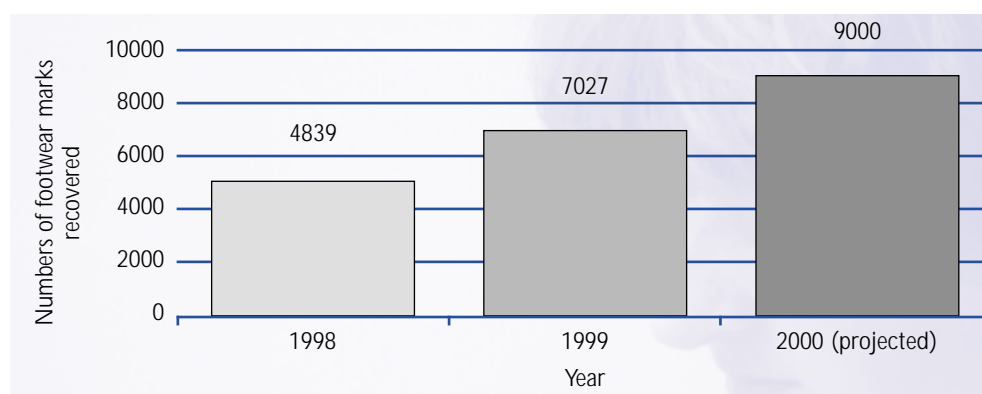


Managing the Footwear

intelligence records with a marker indicating that a covert impression of their footwear is required if the opportunity arises. Through her concerted efforts to promote the worth of footwear evidence through shift briefings, intelligence meetings, and tasking and coordinating groups, the analyst has raised its profile considerably and successfully. Performance indicates that from April 1999 to March 2000, the system had produced 83 potential suspect to scene matches that were developed into intelligence packages and 23 packages resulted in offences being detected. In one part of the sector detections of 28% of burglary dwelling offences were attributed to the footwear system.

- 5.27 West Yorkshire Police has a system developed and operated by a forensic scientist/footwear expert employed by the force, that has been running since July 1997. Staff can access lists of current scene marks on the database from various sites within the force. The footwear expert carries out the forensic examination that would in other forces require a submission to a forensic laboratory and provides court statements. Since the system operates in real time the expert is able to obtain comparisons between suspects' shoes and scenes while the suspect is in custody. This has provided sufficient evidence to charge offenders immediately rather than bail them pending the outcome of forensic examination. Figures provided show that since the introduction of this system the number of scene marks being recovered by SOCO has risen (Figure 13)

Figure 13: Footwear mark recovery figures (West Yorkshire Police)



⁵ Based on the number of evidential screenings recorded where a statement was supplied for court purposes. This does not include detections gained by use of the information alone and does not include comparisons where shoes were eliminated or the likely strength of evidence insufficient for charging purposes.

- 5.28 Outcome results⁵ for the period October 1997 to March 1999 inclusive show that total recorded positive comparisons were 280, 90, of which were conclusive, 45 almost certain, 81 strong and 63 corroborative.

Intelligence

- 5.29 The implications for intelligence are discussed in Chapter 6.

Conclusions

- 5.30 Her Majesty's Inspector was disappointed to find some forces had made little progress in dealing with footwear evidence since the publication of 'Using Forensic Science Effectively' and were not affording footwear evidence and analysis the emphasis that its potential value deserves. SOCOs are recovering such evidence from volume crime scenes but it is not being fully exploited. Where forces do operate a system some are unable to indicate with any certainty how well it is performing.
- 5.31 During the course of the inspection a range of footwear systems were found to be operated by forces. It was also found that there are differences of opinion on which system offers the best solution, with a number of different options available. The needs of forces vary and a system that suits one may not work well for another.
- 5.32 Examples were found of systems that were working well and adding value to volume crime investigation, in terms of intelligence and detections. The defining features of success were the level of awareness and understanding of staff at all stages of the process, including the likely benefits. It is the view of Her Majesty's Inspector that this is an area of scientific support activity where success will breed greater success.

RECOMMENDATION 8

- 5.33 Her Majesty's Inspector recommends that chief officers review systems currently in place for managing footwear evidence. Forces where no footwear system is in place should review their approach to this valuable source of evidence and intelligence.

