The Fingerprint Inquiry | Scotland

The Fingerprint Inquiry Report

Volume 1

The Fingerprint Inquiry Report

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The Fingerprint Inquiry | Scotland

Kenny MacAskill MSP
Cabinet Secretary for Justice
The Scottish Government
St Andrew's House
Regent Road
Edinburgh
EH1 3DG

December 2011

Dear Cabinet Secretary,

You appointed me on 5 March 2008 to hold a public inquiry into the identification and verification of fingerprints associated with the case of *HM Advocate v McKie* in 1999.

I was asked to inquire into the steps that were taken to identify and verify the fingerprints associated with, and leading up to, that case, and to determine, in relation to the fingerprint designated Y7, the consequences of the steps taken, or not taken, and to report findings of fact and make recommendations as to what measures might now be introduced, beyond those that have already been introduced since 1999, to ensure that any shortcomings are avoided in the future.

I now present my Report.

Yours Sincerely

Anthony Campbell.

Sir Anthony Campbell

P.O. Box 23902, 44 Drumsheugh Gardens, Edinburgh, EH3 1AB Tel: 0131 528 5260
E-mail: info@thefingerprintinquiryscotland.org.uk Website: www.thefingerprintinquiryscotland.org.uk

Reader's guide to the Report

1. The Inquiry Report is published by the Inquiry in a printed version and on the Inquiry website.

The printed version of the Report

2. The printed version consists of a 'boxed set' with two volumes of text and two volumes of image supplement. It includes a DVD containing the text of the Report and an electronic folder of relevant visual images.

The Report on the Inquiry website[1]

3. The text of the Report is accessed by clicking on the 'Report' tab on the 'Home' page. The image supplement has not been reproduced as a separate supplement but each image can be accessed (see below).

References in the Report

4. Those with a rank relating to their employment (e.g. police officers) are introduced and identified with that rank the first time they appear in the text. Thereafter they are referred to as Mr, Mrs or Ms. To avoid confusion as to their roles at the time of the events, lawyers subsequently appointed as Sheriffs are not called Sheriff but their appointments are noted in footnotes. In accordance with historical convention, where relevant 'he' is used to include all genders. The term used for the prosecution is generally "the Crown", except in references to criminal cases where, in accordance with convention, the phrase "Her Majesty's Advocate" (HMA) is used instead e.g. *Her Majesty's Advocate v McKie*.

5. A list of witnesses is included in the appendices. The appendix notes the witness's role, Inquiry witness statement reference number, date of oral evidence (if any) and legal representative. Individuals are usually introduced, briefly, the first time they are mentioned in the Report. Inquiry witness statements generally begin with an account of the individual's career history.

6. The Report has extensive footnotes, most of which are references to evidence to the Inquiry in the form of documents or oral evidence at Inquiry hearings.

Transcripts of Inquiry hearings

7. References in the Report to oral evidence at the hearings contain the name of the witness, the date of this evidence in 2009 and the page in that day's LiveNote® transcript. When accessing a transcript on the Inquiry website it is therefore the "download LiveNote transcript" tab that should be used.

1 www.thefingerprintinquiryscotland.org.uk/

Documents

8. Material gathered as evidence or produced in the course of the Inquiry has an Inquiry reference code of two letters followed by four numbers, e.g. XY_1234. Documents coded in this way are available to view on the Inquiry website. When using the website's search tools, the underscore _ must be included in the reference code. Web users may find that general search engines also give direct access to Inquiry documents.

Text documents

9. Where the reference in the Report is to an Inquiry witness statement this is stated but, apart from this, footnotes generally mention only the Inquiry reference code not a description of the document.

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Images

11. The evidence included many fingerprint images. Most of these are referenced in the same way as text documents i.e. there is a footnote reference giving the Inquiry reference code, and relevant images are included in the image supplement.

12. Some images have a suffix 'h' and a few have a suffix 'A', because of the arrangements the Inquiry made to have the best possible digitised images of fingerprint evidence in use at the hearings.

13. Original images were scanned at high resolution (600 dots per inch (dpi) rather than the standard 300dpi) in TIFF format, to optimise the amount of detail preserved when saved electronically. References in transcripts and the Report that include the suffix 'h' indicate that the image was scanned at high resolution.

14. Images with the suffix 'A' are charted enlargements created in Phase 1 of the comparative exercise. The chartings which Phase 1 contributors prepared of Y7 and the print for comparison, and of QI2 Ross and the print for comparison, were scanned at high resolution and electronically resized to allow for the chartings from two contributors to be displayed simultaneously at the hearings. These digital images were named by adding a suffix 'A' to the Inquiry reference code and are referred to with the suffix in transcripts and in the Report.

15. Computer software was available during the hearings so that witnesses could mark up images displayed on screen in order to pin-point precisely the characteristic that was being referred to or to illustrate the interpretation of detail in a mark or print. These images were captured and allocated a special Inquiry reference code at the time, which was then included at that point in the hearing transcript. The Inquiry reference for the material which was annotated is seen within the image and the Inquiry reference code includes the date of the hearing and the number of such 'captured images' already created that day. For example, FI_2110.11 is a 'captured image' (based on EA_0029) which was created during the hearing on 21 October 2009 and was the eleventh 'captured image' that day.

16. A few still photographs were taken during the hearings and the Inquiry reference code for these images also includes the date of the hearing. For example FI_1106-A was the first still photograph taken at the hearing on 11 June 2009.

Viewing images

17. There are a number of options for viewing images referred to in the Report:

- If the printed version of the Report is being used, the images (identified as those references printed in blue) can be viewed in the accompanying image supplement. The supplement includes an index of these images listed alphanumerically according to their Inquiry reference code. Alternatively the images can be viewed on the accompanying DVD or the Inquiry website. Where the reference in blue is to material of many pages, only relevant image pages are included in the image supplement.

- If the Report is being read on the Inquiry website, and the printed version (with its image supplement and DVD) is not available, the images can be viewed on the website using the 'Search' function and the Inquiry reference code (ensuring that the underscore is included).

- If the Report is being read on the DVD, images can be viewed by clicking on any reference in blue, which acts as a hyperlink. The setting of the reader's computer determines whether these can be seen simultaneously with the text. Some references in blue hyperlink to presentations from which only certain images are included in the image supplement. Where a presentation has slides which have a final composite image preceded by a number of intermediate slides, these intermediate slides could not be reproduced in the image supplement but can be viewed on the DVD.

18. Because some of the high resolution scans (at over 220MB) are above the upper limit that can be reproduced for download, 'h' images are not on the Inquiry website but are on the DVD.

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19. Other evidence referred to in the Report can be seen on the Inquiry's website, by following the instructions on using the 'Search' function or by clicking on the "Hearings and Evidence" tab on the Inquiry Home page. This opens a page from which the full evidence archive, dedicated witness pages and transcripts of the hearings can be accessed.

20. The website also contains the transcripts of the two preliminary hearings, witness statements and other documentary evidence received throughout the Inquiry process which may not be mentioned in the Report, as well as background information and procedural details.

National Records of Scotland

21. At the end of the Inquiry the Inquiry Record transfers to the National Records of Scotland.

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PREFACE

On 14 March 2008 the Cabinet Secretary for Justice, Mr Kenny MacAskill, announced in the Scottish Parliament that the Scottish Government was establishing an independent public inquiry under the Inquiries Act 2005 to inquire into the case of Shirley McKie which he said has "cast a cloud over the individuals involved and has been a source of serious concern for the criminal justice system for the past decade."

I was appointed to be Chairman of the Inquiry with the following terms of reference:

> "To inquire into the steps that were taken to identify and verify the fingerprints associated with, and leading up to, the case of *HM Advocate v McKie* in 1999, and to determine, in relation to the fingerprint designated Y7, the consequences of the steps taken, or not taken, and to report findings of fact and make recommendations as to what measures might now be introduced, beyond those that have already been introduced since 1999, to ensure that any shortcomings are avoided in the future."

As the terms of reference state, the scope of the Inquiry extended beyond the identification of Y7 to other fingerprints and required an examination of the subject in general with a view to making recommendations for the future.

I was fortunate in that Mr Gerry J. B. Moynihan Q.C. and Ms Ailsa Carmichael (now Ms Ailsa Carmichael Q.C.) accepted appointment by me as Counsel to the Inquiry and Mrs Ann Nelson as Solicitor and Secretary to the Inquiry. Dr Carole Ross was appointed as Assistant Secretary and during the course of the Inquiry Mr Roddy Flinn and Mrs Debbie Blair each acted as Deputy Solicitor to the Inquiry succeeded by Mr John Grady, advocate.

I wish to record my admiration and appreciation for all the work that Counsel to the Inquiry, Mrs Nelson, the Deputy Solicitors, Mr Grady and the lawyers who assisted them, has each done. Dr Ross, as Assistant Secretary, and the members of the small administrative staff team have worked consistently, and at times under considerable pressure, with zeal and intelligence and for this they each deserve my warmest thanks.

The community of fingerprint experts is deeply divided over the case of Shirley McKie. Many acknowledged experts in the field have expressed opinions over the years. Those who have not done so are perceived by others to be so closely associated with colleagues or organisations that have expressed an opinion that they are not universally regarded as being independent. As a result, at an early stage in the Inquiry it became clear that it would not be possible to appoint an assessor, with suitable expertise in the study of fingerprints, who would be generally accepted as being independent. Moreover it seemed unlikely that there would be any one fingerprint examiner who could be regarded as the final arbiter. In practice it is for a tribunal of fact to decide whether the identity of an individual has or has not been established by means of a fingerprint. The fingerprint expert has to be able to demonstrate where similarities and differences exist. A judge or jury, without training or expertise in fingerprint analysis, then decides on the evidence if the expert is correct. Accordingly, I decided that it was not only necessary but also appropriate that I should conduct the Inquiry without an assessor.

Where I have made findings I have done so to the civil standard of proof, that is on the balance of probabilities and not to the criminal standard of proof which is beyond reasonable doubt.

The work of the Inquiry had depended to a considerable extent on the co-operation of core participants and other witnesses and their recognised legal advisers. Almost without exception they have been of real assistance to the work of the Inquiry. I am especially grateful to those fingerprint experts who took part in the comparative exercise and for the time and trouble that they took over it, and also to those who were invited to comment on recommendations when they were in draft form for their contributions.

One legal representative, Mr David Russell, was critical in a number of respects of the way in which the Inquiry was conducted. Correspondence received from Mr Russell together with responses from the Inquiry has been published on the Inquiry website so that the public may be aware of the criticism.

I recognise that a number of interested parties expected Ms McKie to be required to appear before the Inquiry to give oral evidence in addition to her written statement. As I explained, in the ruling that I gave at the time, I had to balance the advice that I received from a suitably qualified independent medical practitioner against the information that Ms McKie could provide to the Inquiry – having already provided a written statement and given sworn evidence in two criminal trials to the effect that she had not entered Miss Ross's house in Irvine Road beyond the porch. I decided that in these circumstances it was not reasonable to require her to attend to give oral evidence.

One of the purposes of a public inquiry is to gather as much relevant information as possible and to make it available to the public. In the course of the Inquiry around 2500 documents were considered and 100 statements taken from witnesses in addition to those already available from earlier investigations. A review of relevant literature on the subject of fingerprint identification was commissioned. Most of the documents and statements together with a transcript of the oral evidence have been posted on the Inquiry website.

For over 100 years fingerprints have provided the criminal justice system in Scotland and elsewhere with a valuable source of evidence. Like most other forms of forensic evidence, the comparison of fingerprints is a difficult and complex subject and I hope that the Report that follows will allow the interested reader to understand and appreciate the challenges facing the fingerprint examiner. The recommendations made in this Report are designed to assist fingerprint examiners to meet these challenges and to ensure that the identification evidence they provide continues to be evidence in which the general public and the criminal justice system in Scotland can have confidence.

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CHAPTER 1

HISTORICAL BACKGROUND AND THE FINGERPRINTS OF RELEVANCE

The historical background in brief

1.1. In January 1997, Miss Marion Margaret Campbell Ross was found dead in her home in Kilmarnock, Scotland. The murder investigation team included, for a few days, a detective constable, Ms Shirley McKie, then known as DC Cardwell.

1.2. Scene of crime examinations carried out in the course of the investigation into Miss Ross's murder yielded 428 fingerprints and these were examined by the fingerprint bureau of the Scottish Criminal Record Office (SCRO) in Glasgow.

1.3. SCRO identified one of the fingermarks in Miss Ross's house, Y7, as having been made by Ms McKie. A mark on a gift tag in the house, XF, was identified as having been made by Mr David Asbury. Part of a mark on a tin of money in his home, QI2, was identified as having been made by Miss Ross.

1.4. Mr Asbury was prosecuted for the murder of Miss Ross, and convicted in June 1997, with fingerprint evidence being part of the prosecution case.[1]

1.5. During Mr Asbury's trial, although there were disputes about the provenance of certain fingerprints with suggestions of planting being made, no issue arose with any of the identifications made by SCRO. Ms McKie was one of the many witnesses and she gave evidence about her involvement in the murder investigation. She was asked about the fingerprint attributed to her. She did not accept that it was hers, as she denied being in the house beyond the porch.[2]

1.6. Following the murder trial, Ms McKie was prosecuted for the crime of perjury on the basis that she had lied while giving evidence on oath. At her trial in 1999, American fingerprint experts, Mr Pat Wertheim and Mr David Grieve, disputed the identification of Y7. The jury unanimously found Ms McKie not guilty.

1.7. The case had attracted media attention. After her acquittal Ms McKie's father, Mr Iain McKie, raised in correspondence with the Scottish authorities a number of issues concerning the prosecution of his daughter and the expertise and conduct of those on whose fingerprint evidence the prosecution relied. In the years that followed he conducted a campaign through the media, members of Parliament and others to address what he saw as failings in the justice system that were not being addressed and the case featured globally on the internet.

1.8. In early 2000, the case was given added publicity in two television programmes. In these, doubt was cast not only on the identification of Y7 as having been made by Ms McKie, but also on the identification of QI2 as having been made in part by Miss Ross.

1.9. Over the following months various enquiries were carried out by the police and other public authorities. Experts from Holland, Norway and Denmark were involved

1 A note about the investigation and prosecution of crime in Scotland is at Appendix 7.
2 CO_0215 *HMA v Asbury* – police observer's report

and their work resulted in doubts being raised about other marks connected with the two cases.

1.10. The first of these enquiries was by Her Majesty's Chief Inspector of Constabulary for Scotland (HMCICS), William Taylor, who carried out an inspection of the SCRO fingerprint bureau. His emerging findings were made public in June 2000 and the then Minister for Justice, Jim Wallace,[3] informed the Scottish Parliament that Ms McKie's fingerprint had been misidentified and that the bureau was not fully effective and efficient.[4]

1.11. The Association of Chief Police Officers in Scotland (ACPOS) established two review teams. One was a Change Management Review Team and the other, led by the then Deputy Chief Constable of Tayside Police, James Mackay, was a detailed investigation of the circumstances surrounding the fingerprint identification. The Lord Advocate, Colin Boyd Q.C.,[5] appointed the then Regional Procurator Fiscal for North Strathclyde, William Gilchrist,[6] to inquire into allegations by Mr McKie of criminal conduct on the part of fingerprint officers in SCRO. Four SCRO fingerprint officers were suspended on a precautionary basis, and two were moved to non-operational duties.

1.12. In August 2000 a meeting of experts to discuss the identification of Y7 was held at Tulliallan, the Scottish Police College. Mr Taylor's report on the SCRO fingerprint bureau was published in September[7] and Her Majesty's Inspectorate of Constabulary (HMICS) also inspected the entire SCRO. The Mackay report was submitted to Mr Gilchrist and the Change Management Review Team published its report.[8] The Court of Criminal Appeal released Mr Asbury from prison pending the hearing of an appeal against his conviction. The Crown did not oppose the application.

1.13. All SCRO identifications over 13 months from June 2000 were independently checked. Historical cases involving the four officers who had been suspended were also examined. No errors were found.

1.14. In 2001, HMICS published its report on the Scottish Criminal Record Office, considering it to be efficient and effective taken as a whole.[9] The Scottish Fingerprint Service (SFS) was established as a centrally managed organisation operating from four locations, Aberdeen, Dundee, Edinburgh and Glasgow. Mr Gilchrist reported to the Lord Advocate. Neither the Mackay nor the Gilchrist

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3 Now Lord Wallace of Tankerness
4 Scottish Parliament Official Report 22 June 2000 Col 681
5 Now Lord Boyd of Duncansby
6 Now Sheriff Gilchrist
7 Scottish Criminal Record Office - The Fingerprint Bureau Primary Inspection 2000, a report by Her Majesty's Inspectorate of Constabulary, published on 14 September 2000. This was a report on the fingerprint bureau only – SG_0375. The next HMICS report was on the entire SCRO.
8 SG_0522
9 SCRO 2000 Primary Inspection, published on 24 May 2001, URL: http://www.scotland.gov.uk/hmic/docs/scro2rev00-00.asp Follow-up reports: HMICS Second Year Review of SCRO 2000 Primary Inspection, published on 13 December 2001 – SG_0842; HMICS Third Year Review of SCRO 2000, published on 22 May 2003, URL: http://www.scotland.gov.uk/Topics/Justice/public-safety/Police/local/15403/publications/7442-1 (a review of both the 2000 report on the bureau and the 2000 Primary Inspection).

reports were published. The Lord Advocate intimated that no criminal proceedings were to be taken against the fingerprint officers.

1.15. Ms McKie began civil proceedings against the Chief Constable of Strathclyde Police (on the manner of her arrest) and against SCRO and its officers. Strathclyde Joint Police Board, the employers of the fingerprint officers, appointed an 'independent investigating officer', Mr James Black, to investigate whether there were grounds for disciplinary action on the basis of conduct or capability and report to a scrutiny committee.

1.16. In 2002, the Court of Session dismissed Ms McKie's action against Strathclyde Police.[10] The Black report concluded that no matters of misconduct or lack of capability had taken place in the work surrounding Y7 and QI2, and the scrutiny committee recommended that the Board reinstate the four suspended SCRO officers and return the other two to operational duties.[11] The Crown did not oppose Mr Asbury's appeal and his conviction was quashed. Calls began to be made for a public inquiry.

1.17. In 2003, Ms McKie's appeal against the dismissal of her civil claim against Strathclyde Police was dismissed.[12] Her claim for compensation was now against Scottish Ministers as vicariously liable for any wrongs committed by officials of SCRO. When the action was commenced she alleged (in short) that the SCRO examiners had "negligently, or recklessly, or deliberately" stated and maintained an erroneous identification of Y7.[13] The Court of Session ruled that there should be a hearing of evidence.[14] In 2004, the basis of Ms McKie's claim was narrowed to an allegation that the SCRO examiners had acted maliciously.

1.18. HMICS published in 2005 its Primary Inspection report of 2004 on SCRO.[15] In July 2005 the Scottish Ministers announced that they would admit that the SCRO examiners had made a mistake in identifying Y7 as Ms McKie's print and that they would enter into negotiations to settle the civil case.

1.19. In 2006 on the morning of 7 February, the day on which the hearing of evidence was to begin, the case was settled on the basis of a payment of £750,000 to Ms McKie with no admission of liability. The only ruling by the court was as to costs.[16] The then First Minister, Jack McConnell, told the Scottish Parliament that the identification of Y7 was an honest mistake, but it became evident that neither Ms McKie and her father, nor the SCRO officers, believed this to be the case.[17]

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10 Lord Emslie: http://www.scotcourts.gov.uk/opinions/A3254_00.html Feb 02
11 SP_0004
12 Extra Division of the Inner House of the Court of Session: http://www.scotcourts.gov.uk/opinions/A3254.html Feb 03
13 SG_0014 pdf pages 5-6
14 Lord Wheatley: http://www.scotcourts.gov.uk/opinions/A4960.html Dec 03
15 Scottish Criminal Record Office Primary Inspection 2004, a report by Her Majesty's Inspector of Constabulary published on 17 March 2005, URL: http://www.scotland.gov.uk/Publications/2005/03/20826/54258. Follow-up report (Eighteen Month Review Inspection): Her Majesty's Inspector of Constabulary (2006) SCRO Review Inspection 2006 published on 15 December 2006, URL: http://www.scotland.gov.uk/Publications/2006/12/07094448/0
16 Lord Hodge: http://www.scotcourts.gov.uk/opinions/2006CSOH54.html Mar 06
17 Scottish Parliament Official Report 9 February 2006 Col 23240. Scottish Parliament Justice 1 Committee 3rd Report, 2007 (Session 2) Inquiry into the Scottish Criminal Record Office and the Scottish Fingerprint Service, SP Paper 743 Edinburgh RR Donnelly, 2007, paras 12-14

1.20. The newspaper 'Scotland on Sunday' published articles in February 2006 based on information from the Mackay report that it had obtained.[18] The Justice Minister instructed preparation of a plan for the development of the SFS as an integrated part of a new Scottish Forensic Science Service, which was published as the 'Action Plan for Excellence'. The Scottish Parliament decided, following debate, that action needed to be taken to restore confidence in the SFS but a public inquiry was not appropriate.[19] It passed legislation which included provision for the creation of a Scottish Police Services Authority (SPSA).[20]

1.21. The Scottish Parliament's Justice 1 Committee began a parliamentary inquiry whose purpose was to contribute to the process of restoring public confidence in the SFS. It took evidence from many individuals, including the SCRO fingerprint officers and practitioners who disagreed with them.

1.22. In February 2007 the Justice 1 Committee published its report. It was not part of its remit to give a view on whether Y7 was correctly identified or not but it highlighted the "widely divergent professional opinions" and, more broadly, considered that the SFS faced considerable challenges to become a recognised centre of excellence, recommending that the Action Plan be strengthened in the areas of leadership and management, human resources, procedures and quality assurance.[21]

1.23. Five of the SCRO fingerprint examiners left SFS employment in March 2007 on agreed terms. One did not agree a settlement and later appealed her dismissal. They continue to maintain that their identifications are correct.

1.24. In April 2007 SCRO and the other bureaux in the SFS became part of the SPSA. On 24 August 2007 the Scottish Government indicated that it would be setting up an Inquiry into the Shirley McKie case,[22] and, as noted in the Preface, the establishment of this Inquiry was announced in March 2008.[23]

The fingerprints of relevance to the Inquiry

Terminology

1.25. In this Report the word 'mark' is normally used for a fingerprint that is found in the course of an investigation, and 'print' for a fingerprint that is taken from a known individual, usually in controlled conditions such as at a police station.

18 Also, on 3 May 2006, an excerpt from the report and two accompanying documents were published on the BBC website.

19 Scottish Parliament Official Report 8 March 2006 Col 23783. Scottish Parliament Justice 1 Committee 3rd Report, 2007 (Session 2) Inquiry into the Scottish Criminal Record Office and the Scottish Fingerprint Service, para 18.

20 Police, Public Order and Criminal Justice (Scotland) Act 2006, asp 10, HMSO, 2006

21 Scottish Parliament Justice 1 Committee 3rd Report, 2007 (Session 2) Inquiry into the Scottish Criminal Record Office and the Scottish Fingerprint Service; Justice 1 Committee news release on report into the Scottish Criminal Record Office and the Scottish Fingerprint Service 15 February 2007, URL: http://www.scottish.parliament.uk/nmCentre/news/news-comm-07/cj107-002.htm

22 Scottish Government 2007 Reporting on 100 Days: Moving Scotland Forward, URL: http://www.scotland.gov.uk/Publications/2007/08/23162100/2

23 Scottish Parliament Written Answer 14 March 2008 (S3W-10920) URL: http://thefingerprintinquiryscotland.org.uk/inquiry/76.48.html

Y7, QI2, QD2, QE2, QL2, XF

1.26. The Inquiry's terms of reference highlighted Y7 but in referring also to "the fingerprints associated with, and leading up to, the case of *HM Advocate v McKie*" the remit was understood to embrace other marks, and I decided that the following were relevant:

- Y7: a mark on the door-frame of the bathroom where Miss Ross's body was found;
- QI2: a cluster of marks on a tin containing money found in the home of David Asbury parts of which were identified as the marks of Miss Ross and Mr Asbury (and referred to in this report as QI2 Ross and QI2 Asbury, respectively);
- QD2: a mark on a banknote in that tin;
- QE2 and QL2: marks on the tin; and
- XF: a mark on a Christmas gift tag found in the living room of Miss Ross's house.

Why the marks were relevant

1.27. The identifications of Y7, QI2 (Ross), and QD2, as belonging to Ms McKie, Miss Ross and Mr Asbury respectively, had all come to be disputed, and the view had been expressed that QI2 (Asbury), QE2 and QL2, all identified as belonging to Mr Asbury, were of insufficient quality for such determinations.

1.28. XF was included because it had been an important mark in the trial in *HMA v Asbury* and, though the identification had not been disputed, I wished to confirm that there was no room for doubt. It emerged that questions were raised by Mr Wertheim about the authenticity of the mark.[24]

Mark not pursued: Z7

1.29. Z7 was a partial palm print. It was found at the same time as Y7 and can be seen in the same images[25] immediately below Y7 on the door-frame. SCRO records indicate that it was set aside by Mr Alister Geddes, one of the SCRO fingerprint examiners, as fragmentary and insufficient[26] and therefore it was not included in the productions prepared for court. The Inquiry's initial interest in this palm print lay in the possibility that it might have been linked to Y7 and, if so, might assist in ascertaining whether Y7 was made by a left thumb (as SCRO concluded) or another digit. In the event Z7 was not pursued in the comparative exercise or at the hearings in part because it had not featured in the preceding debate and was not raised as an issue by any of the parties to the Inquiry and also because the debate about Y7 among the witnesses turned more on the observed details in the mark than on the question whether it was considered to have the pattern of a thumb print.

1.30. To eliminate any doubt I asked the Metropolitan Police to examine Z7. The Metropolitan Police assigned the task to three fingerprint examiners and reported that Z7 contained insufficient detail for search or comparison purposes and was not associated with Y7.[27]

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24 FI_0130 pdf page 15 Mr Wertheim Phase 1 Comparative Exercise and FI_0118 Inquiry Statement of Mr Wertheim. See chapter 27
25 PS_0002h and PS_0001h
26 FI_0031 para 110 Inquiry Witness Statement of Mr Geddes and DB_0003
27 MP_0012

The mark Y7

1.31. Y7 was found on a painted wooden frame surrounding the door into the bathroom where Miss Ross's body was found. Viewed from the hall, Y7 was on the right hand side of the entrance to the bathroom. It was about 5 feet[28] above ground level on the inside face of the door-frame.[29]

1.32. The Inquiry obtained copies of two photographs taken in the house with the door-frame in place.[30] Figures 1 and 2, prepared for the Inquiry, illustrate the part of the door-frame on which Y7 was found with door open and door closed.[31]

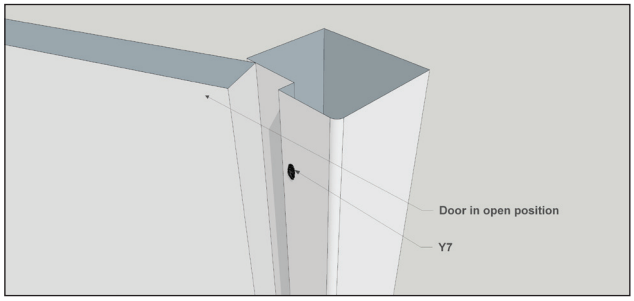

Figure 1

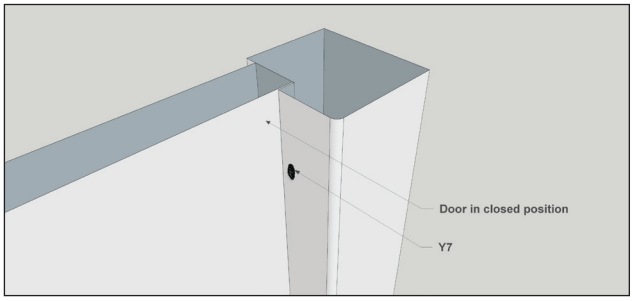

Figure 2

1.33. The mark was measured by Dr Stephen Bleay, of the Home Office Scientific Development Branch (HOSDB), as being at its longest point 16.5mm and its widest 9.5mm[32] and is shown, actual size, in figure 3.[33]

1.34. The door-frame on which Y7 was deposited was seized by the police and removed from the scene but is still available for examination and I was therefore able to view it. Seen in its natural state Y7 was not uniform in appearance. Part of it was more prominent, a darker oval occupying about two-thirds of its area, and the remainder fainter. The contrast is best seen in one of Dr Bleay's photographs in his initial report.[34]

1.35. In evidence to the Inquiry Mr Geoffrey Grigg of the National Policing Improvement Agency[35] drew attention to the unusual outline of the mark on its right side where the bottom of the mark steps out from the line of the upper part as shown in an image in one of Dr Bleay's reports.[36] Mr Grigg's explanation that this reflected the contours of a groove in the wood was confirmed by experiments with different light sources carried out by Dr Bleay[37] and the groove can be seen in Dr Bleay's images d and e in Figure 4 in Dr Bleay's report.[38] The groove had been mentioned by Mr Arie Zeelenberg and Mr Torger Rudrud, Heads of the National Fingerprint Service in the Netherlands and Norway respectively, in their report for HMCICS

28 1.52m
29 It was roughly in the position indicated by the blue arrow in the image FI_0910.03.
30 CO_0345 pdf page189 (images of the mark are on pdf page 188). (One of the images from page 189 is shown alongside a close-up of the mark in FI_2710.04.)
31 FI_2432 - 'axonometric views'
32 EA_0069 pdf page 21 - Report of Dr Bleay dated 4 March 2009
33 PS_0002h
34 EA_0067.006 from EA_0067 pdf page 6
35 Mr Grigg 29 September pages 27-28. The NPIA was formerly known as the National Training Centre for Scientific Support to Crime Investigation.
36 EA_0164.001 from EA_0164 pdf page 1
37 EA_0164 and Dr Bleay 16 November pages 148-150
38 EA_0164.005 from EA_0164 pdf page 5

dated 28 June 2000[39] and it was accepted as the explanation for the outline of the mark by Mr Robert Mackenzie, Deputy Head of the SCRO Fingerprint Bureau, in his report of 29 August 2000.[40]

1.36. The mark has been photographed on at least seven occasions:

- three times by scene of crime officers as part of the murder investigation: on 14 January, 12 and 18 February 1997;
- by Mr Terry Kent of the then Home Office Police Scientific Development Branch (now retired), in March 1997;[41]
- by Mr Wertheim in 1999;[42]
- by the National Training Centre at Durham;[43] and
- by Dr Bleay in 2009 for the purposes of this Inquiry.[44]

In the photographs taken after March 1997 there is a striation across the middle of the mark which Dr Bleay suggested may have been caused by string tied around the exhibit to attach a label to it.[45]

1.37. Ms McKie's prints have been taken on at least six occasions:

- at least three times by the police: on 6 February 1997,[46] 18 February 1997[47] and 6 March 1998;[48]
- by Mr Wertheim in March 1999;[49]
- by a fingerprint practitioner, Mr Ron Cook, in October 1999[50] presumably for the purposes of a BBC documentary; and
- there is also a sheet with blue ink impressions of Ms McKie's left thumb[51] sent by Levy & McRae, solicitors for Ms McKie, to Mr Peter Swann, a fingerprint consultant, in March 1999.[52]

1.38. The SCRO examiners who initially identified the mark Y7 as having been made by the left thumb of Ms McKie did so by reference to a photographic image of mark Y7[53] and the police fingerprint form from Ms McKie dated 6 February 1997.[54] The Inquiry had the originals of these materials and used the available negatives to obtain reproductions of the images of the mark used by SCRO.

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39 AZ_0022 para 10.1
40 CO_0063 pdf page 2
41 e.g. TS_0006
42 e.g. DB_0172h
43 Now the NPIA
44 e.g. EA_0067.006; he also produced images from an original negative e.g. EA_0035
45 EA_0067 pdf page 5. The presence of this striation is discussed in chapter 11 para 42ff.
46 ST_0004h
47 DB_0008h
48 DB_0009h
49 DB_0034
50 DB_0140h
51 TS_0010
52 TS_0009
53 PS_0002h
54 ST_0004h

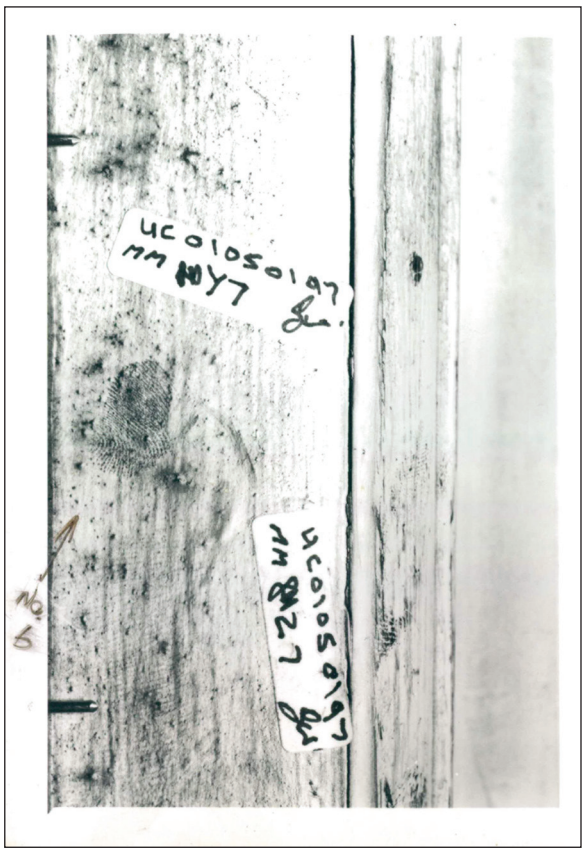

Figure 3

1.39. Y7 featured in the prosecutions in both *HMA v Asbury* and *HMA v McKie*. The Inquiry had the productions that were prepared by SCRO fingerprint examiners for the trials which included enlargements prepared by them to illustrate their conclusion (Productions 152,[55] 180[56] and 189[57]).

The cluster of marks QI2

1.40. QI2, a cluster of marks, was found on a small metal tin containing money. The tin had been seized from the home of David Asbury. Part of QI2 was identified as the right forefinger of Miss Ross and part as the right middle finger of Mr Asbury. During the Inquiry the parts of the marks came to be referred to as 'QI2 Ross' and 'QI2 Asbury'.

1.41. The tin, which is house-shaped and overprinted with a multicoloured design, is approximately 12.5 cm long x 8 cm wide x 7.3 cm high. As can be seen from the photograph at figure 4,[58] the cluster QI2 was found on an end which featured a scene with a horse drawn tram. QI2 was at the top left of the picture of the tram and some of the underlying detailing of the tram (including the steps, the handrail and the facia) comes through in the mark. The mark is shown, actual size, in figure 5.[59]

55 ST_0006h
56 DB_0011h
57 DB_0012h
58 EA_0067.007 from EA_0067 pdf page 7
59 DB_0001h

Figure 4

1.42. Marks QI2 Ross and QI2 Asbury featured in the evidence in the trial of Mr Asbury but not in the trial of Ms McKie.

QI2 Ross

1.43. Prints were taken twice from Miss Ross's body at the mortuary, on 10[60] and 23 January 1997,[61] and the Inquiry had the two original sets. It was the print form dated 10 January 1997 that was used by the SCRO examiners who initially identified QI2 Ross.

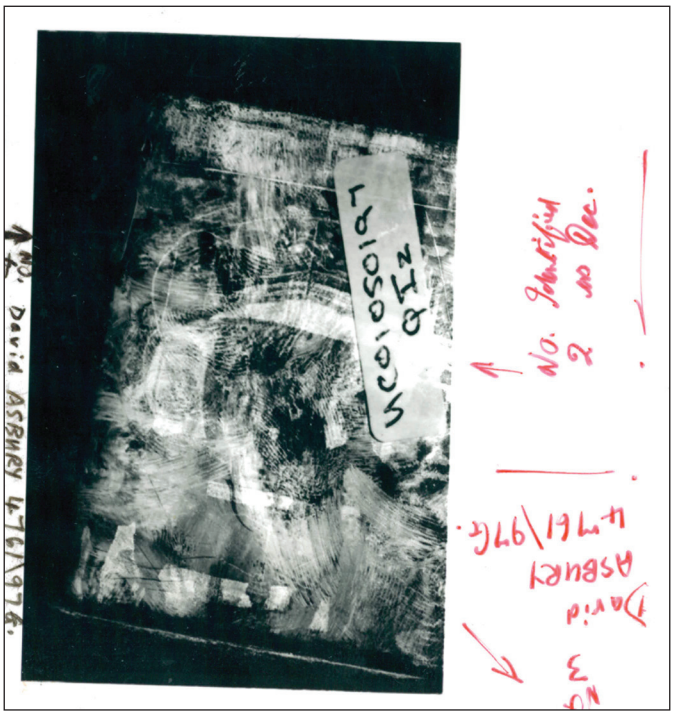

Figure 5

60 DB_0142h
61 DB_0017h

1.44. The Inquiry had the original of the image of QI2 studied by them[62] and the negative of that image. Reproductions were obtained from the negative and, in addition, the Metropolitan Police provided the Inquiry with high resolution scanned copies of the original image.

1.45. QI2 Ross was the subject of a joint report by the SCRO examiners Mr Hugh MacPherson, Mr Charles Stewart, Ms Fiona McBride and Mr Anthony McKenna that was Production 101[63] in *HMA v Asbury*. Part of the mark was certified as that of Miss Ross under reference to the 16 points in the charted enlargement in Production 99. The Inquiry recovered only relatively poor photocopies of Production 99.[64]

XF, QI2 Asbury and various other Q marks

1.46. XF, QI2 Asbury, QD2, QE2 and QL2 were marks identified as having been made by Mr Asbury. They were all included in the same joint report in *HMA v Asbury*[65] and the Inquiry had the original of the accompanying Production 98[66] which contained photographic images of the marks and a charted enlargement for XF but not for the other marks.

1.47. The Inquiry recovered only what appeared to be colour photocopies of the fingerprints of Mr Asbury, not the inked originals. These were three charge/arrest forms all dated 26 January 1997.[67]

1.48. **XF** was identified as the right forefinger of Mr Asbury. It is shown in figure 6.[68] The Inquiry had the original image of XF used by SCRO when the mark was first identified,[69] and the corresponding negative, from which paper and digital copies were reproduced for use by the Inquiry.

Figure 6

62 DB_0001h
63 SG_0377
64 CO_0207h and SG_0131h
65 SG_0352
66 SG_0010h
67 SG_0349h (marked “inaccurate”), SG_0350h and SG_0351h
68 EA_0188
69 CO_1987h

1.49. **QI2 Asbury.** The QI2 cluster is described above. As regards the part attributed to Mr Asbury, the Inquiry had the original of the image studied by the SCRO examiners who initially identified the print, the same photograph as was used in the identification of QI2 Ross.[70] During the Inquiry Ms McBride outlined, on an enlargement, the part of the mark attributed to Mr Asbury[71] and this is shown in figure 7. The Inquiry had a second original image of QI2[72] and also had the negatives of those images.

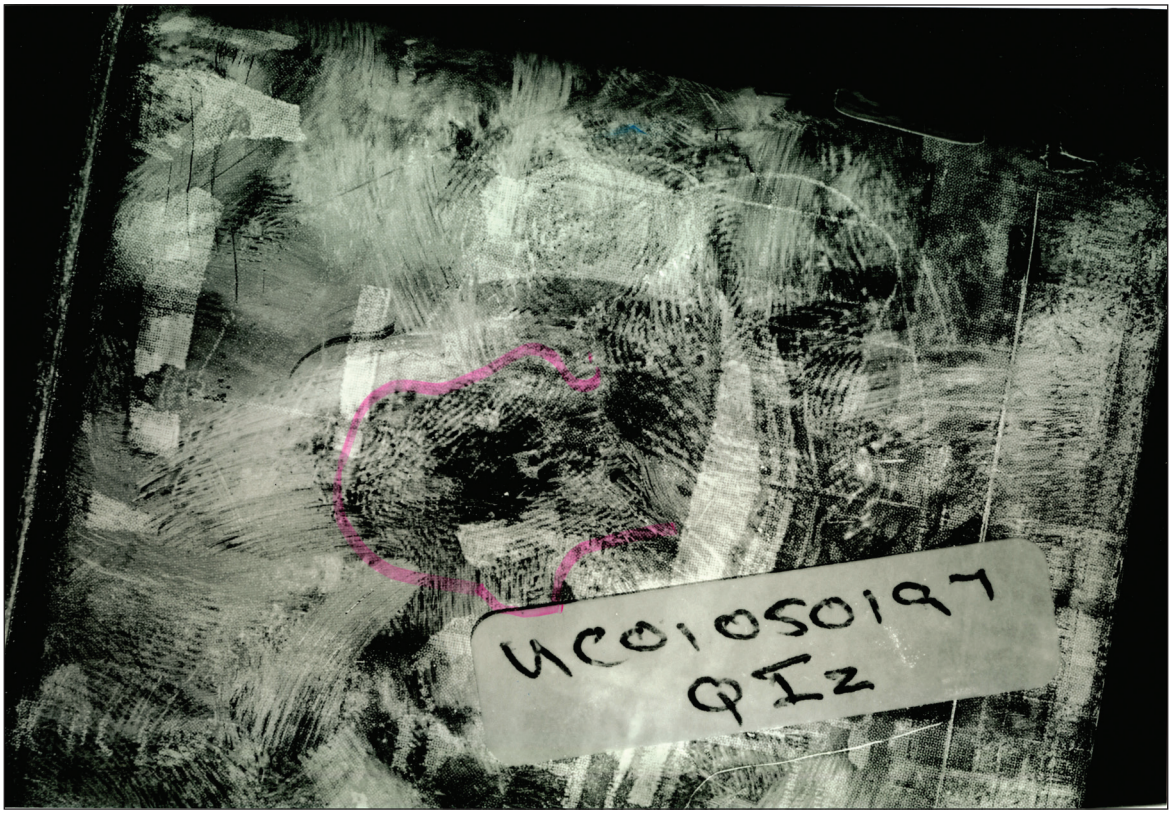

Figure 7

1.50. **QD2** was identified as the right little finger of Mr Asbury. The banknote on which it was found no longer exists.[73] The Inquiry had only photocopies of the original image that the SCRO examiners used in their comparison and on which they wrote their findings in manuscript. The Inquiry had the different photographic original of mark QD2 contained in Production 98 and the negatives of that image, from which copies were reproduced.

1.51. **QE2** and **QL2,** along with QI2, were among a batch of eight marks (QE2-QL2) found on the tin. QE2 was on the lid and QL2 on the base. The Inquiry had the original photographs of both QE2[74] and QL2[75] that the SCRO examiners examined on which they wrote their findings in manuscript. The Inquiry also had the images of those marks that were included in Production 98.[76]

70 DB_0001h
71 FI_2463
72 CO_1993h
73 EA_0067 pdf page 9
74 CO_1991h
75 CO_1992h
76 SG_0010h

CHAPTER 2

FINGERPRINTS AND THEIR USE IN THE CRIMINAL JUSTICE SYSTEM

Early pioneers[1]

2.1. Fingerprints and handprint patterns have been used as a means of personal identification for thousands of years. Records indicate the use of fingerprints and handprints as marks of authenticity in China at least 2000 years ago. The first scientific recognition of fingerprints in the West came from writings in the late seventeenth century. In 1684, an English plant scientist Dr Nehemiah Grew studied and described the ridges, furrows and pores of human hands and feet, and in 1686 an Italian professor Marcello Malpighi, using the newly invented microscope, referred to the varying ridges and patterns of human fingerprints, stating that the ridge detail was drawn out into loops and whorls, descriptors still used today. Professor Johannes Purkinje, a professor of anatomy at the University of what was then Breslau, in 1823 described and illustrated nine fingerprint pattern types in considerable detail, naming each pattern type and devising rules for their individual classification.

2.2. The first recorded systematic capture of hand and finger images uniformly taken for identification purposes was implemented in 1858 by Sir William Hershel, who, while working for the Civil Service of India, used prints to distinguish between employees. He accumulated a sizable fingerprint collection, which he offered as empirical proof to what had frequently been asserted in theory: that each fingerprint was unique and also permanent to the individual.

2.3. A Scot was responsible for a major milestone in fingerprint history and the use of inked impressions. In 1880, Dr Henry Faulds, while working as a medical missionary in Tokyo, was also conducting research into fingerprints. He proposed that because the ridge detail of any one fingerprint is unique they could be classified and used to solve crimes. He suggested that fingerprints could be used in an investigation to eliminate an accused individual and also to prove identity, by comparison of finger marks left at scenes of crimes by the criminal. Like Sir William Herschel, Dr Faulds had discovered that oil and sweat from the pores resulted in latent (invisible) prints that could be developed with powders. His proposition moved fingerprint images beyond civil applications, such as contracts, and into the forensic arena.

2.4. Other means of identification were also being considered, one being anthropometry, the measurement of the human body. One system was developed by Frenchman Alphonse Bertillon and from 1878, numerous specific measurements of an arrestee would be taken, and other physical characteristics noted, including, from 1894, fingerprints. English scientist Sir Francis Galton, having considered this system, in 1892 published a book entitled ‘Finger Prints’ on the use of fingerprints

1 For more information see for example Ashbaugh, D. Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology. Boca Raton: CRC Press, 1999; Champod, C., Lennard, C., Margot, P and Stoilovic, M. Fingerprint and Other Ridge Skin Impressions. Boca Raton: CRC Press, 2004; Farelo, A. (2009)
A History of Fingerprints. (Interpol) URL: http://www.interpol.int/Public/Forensic/fingerprints/History/BriefHistoricOutline.pdf

for identification which created the basis for fingerprint classification. He categorised fingerprints into three pattern groups: arches, loops and whorls. Sir Edward Henry set about finding a formula that would allow a fingerprint collection of several thousand to be filed and retrieved, and published 'Classification and Uses of Fingerprints' in 1900. Dr Edmond Locard, later head of the forensic science laboratory in Lyon, and a pioneer of poroscopy, reviewed the various systems of personal identification in 1906 and was convinced of the superiority of fingerprinting (dactyloscopy). The classification method for fingerprints gradually replaced the anthropometrical records of 'bertillonage'. The Henry Classification System remained the standard until the introduction of automated systems.

Fingerprint evidence

2.5. Fingerprints and other 'friction skin' patterns are used as a means of identifying individuals, particularly in criminal justice systems worldwide. Professor Christophe Champod, Professor of Forensic Science at the University of Lausanne, gave a general explanation to the Inquiry about the premises on which fingerprint evidence is based and the nature of the work that is undertaken.[2]

Friction ridge patterns in skin

2.6. The surface of the skin on the tips of the fingers, palms of the hands and soles of the feet, unlike the skin on most of the rest of the human body, is continuously corrugated with narrow ridges. The purpose of the ridges is to increase the friction between these surfaces and the surfaces with which they come into contact, hence the terms 'friction ridges' and 'friction ridge analysis'.

2.7. The friction ridges form patterns. Sometimes narrow and often fragmented ridges appear between normal friction ridges. These are called incipient, immature, rudimentary, subsidiary or nascent ridges. Friction ridges vary in length from a section of ridge with one pore to a ridge with hundreds of pores.

2.8. The 'blueprint' for a digit's friction ridges is laid down in the skin's lower layer, the dermis, in the early stages of foetal development, and the friction ridges develop in their definitive form before birth. The cells in the upper layer, the epidermis, are constantly regenerating during life but because the pattern in the epidermis reflects the structure of the dermis beneath, it is only if the dermis itself is cut that a scar will remain visible on the skin's surface. Friction ridges persist throughout life save where there is permanent scarring. The persistence of friction ridge detail throughout life is the first basic premise of fingerprint identification.

2.9. The second is that the arrangement of the friction ridges varies from one fingerprint to another, both as between the fingers of any one individual and between donors. This 'between sources' variability[3] of the arrangements of ridges in sequence is extreme to the point that no two individuals showing the same arrangements have ever been found. 'Uniqueness' applies not only to the detail of the complete fingerprint but also to small areas.[4]

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2 Professor Champod 25 November page 1ff and ED_0005. See also Ashbaugh, D. Quantitative-Qualitative Friction Ridge Analysis, 1999

3 ED_0005 page 74

4 Ashbaugh, D. Quantitative-Qualitative Friction Ridge Analysis, 1999, pages 85 and 91-92

2.10. It is the persistence and uniqueness of the pattern of the ridges in skin that in combination mean that fingerprints provide a means of discriminating between one individual and another. These premises are at the heart of the work variously described as fingerprint ridge analysis, fingerprint comparison, fingerprint identification or 'individualisation'. In some jurisdictions 'judicial notice' has been taken of permanence and uniqueness as matters of fact;[5] 'judicial notice' meaning that the reliability of these propositions is regarded as being so well established that any challenge to them in court would be regarded as manifestly unfounded.[6] Nonetheless, some have claimed that the premises have not been scientifically proven. The National Academy of Sciences[7] concluded that there is some scientific evidence in support but research to validate the concepts is ongoing.[8]

Three levels of detail

2.11. Overall friction ridge patterns vary within limits which allow for classification and the organisation of prints into groups. Two focal points are a delta, where three ridge systems meet, and the core, generally at the centre of a fingertip, where ridges 'recurve' with the most angle or slope. Practitioners used standard 'labels' to distinguish between various flow patterns they observe, such as loop to the right, loop to the left, whorl or arch. A loop has only one delta (either to the left in a right loop, or to the right in a left loop),[9] a whorl generally has two deltas, and an arch has no delta.

2.12. Classification is a tool for the efficient search of available prints. The concept tended to be simplified to saying a print was a loop or a whorl or an arch but the reality of the flows on fingertips means that in fact there is a continuum of shapes, a progression between what might be classified as a whorl or an arch. Some patterns are more common than others, for example loop patterns are frequent and arches infrequent.

2.13. This general flow pattern or overall friction ridge pattern, the 'first level detail', guides a comparison towards like formations. Where a mark and a print differ in their level one detail (e.g. one is a whorl and the other an arch) the possibility of a match is excluded. Coincidence of level one detail is not itself sufficiently discriminating to 'individualise'.

2.14. 'Level two detail' refers to the specific formation, the detailed path of the individual friction ridges and how they deviate. 'Galton characteristics', 'points' and 'minutiae' are all terms for level two features. The two main types of level two detail are a ridge ending (where a ridge terminates), and a bifurcation (where it splits into two

5 Champod, C., Lennard, C., Margot, P and Stoilovic, M. Fingerprint and Other Ridge Skin Impressions, 2004, page 15

6 The Law Commission Consultation Paper No. 190, The Admissibility of Expert Evidence in Criminal Proceedings in England & Wales, 2009, para. 6.54(1), URL: http://www.justice.gov.uk/lawcommission/docs/cp190_Expert_Evidence_Consultation.pdf

7 Committee on Identifying the Needs of the Forensic Sciences Community, Committee on Science, Technology and Law Policy and Global Affairs, Committee on Applied and Theoretical Statistics Division on Engineering and Physical Sciences, National Research Council. Strengthening Forensic Science in the United States: A Path Forward, Washington, D.C.: National Academies Press, 2009, page 143

8 US Department of Justice, Office of the Inspector General (2011) A Review of the FBI's Progress in Responding to the Recommendations in the Office of the Inspector General Report on the Fingerprint Misidentification in the Brandon Mayfield Case, URL: http://www.latent-prints.com/images/FBI%20Mayfield%20Progress%20062011.pdf, pdf page 7

9 The left and right references are to the direction the ridges flow out of the pattern.

branches). These can be combined: for example a ridge might divide and after a short distance re-form as a single ridge, and the two bifurcations, taken together, would form a 'lake'; or there can be a short length of ridge, with a ridge ending at either end, which can be described as an 'island'. The detail can include features such as warts, scars, creases and wrinkles. Second level detail has 'individualising power'.[10]

2.15. 'Level 3 features' need higher magnification to be visualised easily and the focus is on the edges of the ridges and the pores and their shape.

Crime scene marks

2.16. Some fingerprint evidence at a crime scene or on a related item may be visible i.e. it can be seen without any particular treatment. Examples are where a mark is formed by a finger which has been contaminated with a coloured substance such as blood or where a finger removes material which is already on a surface such as dust.

2.17. More often fingerprint evidence is latent. A fingerprint is a complex mixture of natural secretions and contaminants from the environment, and there are a variety of techniques to make latent fingerprints visible.

2.18. Scenes of crime and objects relevant to a crime are examined by specialists to reveal any impressions that may be present, using various types of powder and chemicals suited to the kind of surface. Any impression found is preserved either by being lifted using tape or by being photographed and passed to a fingerprint examiner, a person who through training and experience is skilled in the identification of marks.

Plain and rolled prints

2.19. In 1997 the finger and palm prints of known persons were usually taken by police personnel on fingerprint 'ten-print forms'.[11] Generally two impressions were taken from each digit, one 'rolled' (where the side of a finger was placed down and the finger rotated) and one 'plain' (where all the fingers were lightly pressed down on the form with a single touch). The fingerprint forms for Ms McKie and Mr Asbury had plain and rolled inked prints.

2.20. The digits are numbered from one to ten: the digits on the right hand run from 1 (thumb) to 5 (little finger) and those on the left hand from 6 (thumb) to 10 (little finger). So for example the gift tag mark, XF, which was identified as being Mr Asbury's right forefinger was his "No. 2",[12] and Y7 which was identified as being Ms McKie's left thumb was her "No. 6."[13]

2.21. Fingerprints may be taken from the body of a deceased person, as happened with Miss Ross. The 'dead print' forms for Miss Ross had only one impression per digit.[14]

10 Ashbaugh, D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 96
11 They now have 'Livescan'.
12 CO_1987h
13 PS_0001h
14 DB_0142h and DB_0017h

2.22. Plain and rolled prints taken of the same finger may show more or less of the finger's surface area.

The use of automated systems

2.23. Human sight is central to fingerprint work, and has not been displaced by technology. Automated Fingerprint Identification Systems (AFIS) were introduced towards the end of the twentieth century to assist with the growing volume of prints. AFIS use computer technology and specially coded digital images which can be searched and compared. AFIS processing makes it possible to search marks found at crime scenes against an entire collection of fingerprint files.

2.24. SCRO witnesses described the Automated Fingerprint Recognition system, AFR, that was at the time in use in Scotland. The computer could not use a mark which was distorted, twisted or superimposed.[15] For marks selected for use, the basic searching criteria would be assessed i.e. the finger which the examiner considered had made the impression, the pattern type and a clear area of characteristics. This information would be put into the system and the computer would produce a list of candidate images, scored in order of probability.[16] 'IDENT1' replaced AFR in 2006. It is a single database of finger and palm prints for Scotland, England and Wales.[17]

2.25. Examiners take the pool of prints retrieved from the system and carry out their standard comparison work, comparing the crime scene mark with those prints.

2.26. Fingerprint comparison work can also be carried out 'manually' using the prints of known individuals not previously stored on the computer system. The prints will be provided by the police for individuals who may be of interest to the police or who require to be eliminated from the particular investigation.

Fingerprint comparison work

2.27. Fingerprint examiners carry out a visual comparison of a crime scene mark and prints from a known individual. A mark left on a surface is generally being compared with a print taken in controlled conditions[18] for example using ink or, in current practice, 'Livescan', an optical device used to capture impressions digitally.

2.28. The comparison process is to determine whether a mark and a print match so that the mark can be 'individualised'. By the mark being 'individualised' fingerprint examiners mean that it can be attributed to the known individual to the highest level of specificity: it is unique to that one individual out of the whole human population throughout history.

2.29. The sources that the examiner uses in the comparison process, the mark and the print, are both impressions.

The premises of fingerprint identification

2.30. A number of commentators highlight that the two basic premises explained in paragraphs 8-10 relate to friction ridge patterns in skin, whereas fingerprint

15 FI_0046 para 87 Inquiry Witness Statement of Mr Mackenzie
16 FI_0046 paras 76-82 Inquiry Witness Statement of Mr Mackenzie and FI_0055 para 22 Inquiry Witness Statement of Mr MacPherson
17 e.g. Mr Nelson 13 November pages 100-101
18 A mark to print search. Examiners also do print to print, mark to mark and print to mark searches – see e.g. glossary in SG_0375.

examiners work with impressions. "Statements about the two media are not necessarily interchangeable."[19] Simon A. Cole, in an article entitled 'Is Fingerprint Identification Valid? Rhetorics of Reliability in Fingerprint Proponents' Discourse',[20] argued that there is a distinction between two propositions:

1. No two individuals have been known to share the same fingerprint, hence fingerprints can provide a reliable basis for identifying an individual.

2. The fingerprint examiner who is giving evidence has been able reliably to observe and interpret a sufficient number of matching characteristics in mark and print to prove that a particular individual is the donor of the particular crime scene mark.

The reliability of fingerprint evidence depends on both propositions but Cole argued that the second does not necessarily flow from the first.

2.31. The National Academy of Sciences makes a similar point:

> "Some scientific evidence supports the presumption that friction ridge patterns are unique to each person and persist unchanged throughout a lifetime. Uniqueness and persistence are necessary conditions for friction ridge identification to be feasible, but those conditions do not imply that anyone can reliably discern whether or not two friction ridge impressions were made by the same person. Uniqueness does not guarantee that prints from two different people are always sufficiently different that they cannot be confused, or that two impressions made by the same finger will also be sufficiently similar to be discerned as coming from the same source. The impression left by a given finger will differ every time, because of inevitable variations in pressure, which change the degree of contact between each part of the ridge structure and the impression medium. None of these variabilities—of features across a population of fingers or of repeated impressions left by the same finger—has been characterized, quantified, or compared."[21]

2.32. The English Law Commission went one stage further by highlighting that fingerprint examiners can be required to work with *partial* impressions:

> "Even identical twins have different fingerprints. It therefore seems that fingerprints are generated by a combination of genetic and environmental factors in the womb, meaning that it is extremely unlikely that two individuals will share a complete fingerprint. However, this does not mean that an individual will always be correctly identified from a crime-scene print, given the greater possibility that two individuals will share part of a print and, more importantly, the difficulty of discerning whether or not a partial or smudged crime-scene print matches a print taken from the accused in controlled circumstances."[22]

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19 Ashbaugh, D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 93

20 Cole S.A. Is Fingerprint Identification Valid? Rhetorics of Reliability in Fingerprint Proponents' Discourse. Law & Policy, 2006; 28(1): 109-135

21 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, pages 143-4

22 The Law Commission. Expert Evidence in Criminal Proceedings in England and Wales. The Stationery Office, 2011, LC325. Page 32 footnote 65. URL: http://www.official-documents.gov.uk/document/hc1011/hc08/0829/0829.pdf

2.33. The second basic premise of fingerprint comparison work does extend to the proposition that the details *in small areas* of friction ridge patterns are unique and never repeated.[23] As the Law Commission recognises, the pertinent question, which is how small an area can yield a pattern sufficiently unique for a reliable individualisation, cannot be divorced from the quality of the impressions being compared.[24]

2.34. This necessitates close attention to the nature of impressions.

The variability of impressions

2.35. The friction skin is a three-dimensional structure. On contact with a surface a two-dimensional impression may be left of the pattern of the skin. How well the details from three-dimensional ridges are reproduced in the two-dimensional impression (mark and print) is often referred to as the 'clarity' or 'quality' of the fingerprint. This varies depending for example on the nature of the surface and of the contact made.

2.36. Many of the minute details that make small areas of friction skin unique do not survive the transition from finger to impression. The pressure used when the impression is made, 'deposition pressure', generally changes the shape of the friction ridge by flattening or broadening each ridge. Friction skin is flexible, but within limits, and this can result in sideways sliding of ridges, showing in an impression as smearing and sometimes called 'pressure distortion'.[25]

2.37. Various 'substrates', the surfaces on which fingermarks are left, can cause distortion or interfere with the deposition of a print, affecting its appearance and clarity.[26] The technique used to detect and develop an impression can also affect how it appears.[27]

2.38. Impressions from the same digit vary, even impressions taken in controlled conditions. Professor Champod described this as 'within source' variability.[28]

2.39. In his evidence to the Inquiry Professor Champod displayed a series of impressions made by the same finger.[29]

(i) The first series of three images corresponded to 'prints' taken under controlled circumstances and comprised (1) an inked impression "rolled nail-to-nail" with ink, (2) an impression taken using a high resolution Livescan (a 'flat' impression, not rolled, with the finger simply laid on the surface of the sensor) and (3) an impression taken using a lower resolution Livescan device.[30] The three impressions were not identical. They were all different but showed features which an examiner could relate.

23 Ashbaugh, D. Quantitative-Qualitative Friction Ridge Analysis, 1999, pages 91-92
24 Ashbaugh, D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 93
25 For example in Ashbaugh, D. Quantitative-Qualitative Friction Ridge Analysis, 1999
26 Ashbaugh, D. Quantitative-Qualitative Friction Ridge Analysis, 1999
27 See chapter 19
28 ED_0005 page 73
29 Professor Champod 25 November page 41ff
30 ED_0005 page 18

(ii) The second series, corresponding to 'marks', were contacts on (1) a sheet of plastic, (2) a sheet of paper and (3) adhesive tape.[31] These too were different not only from the 'prints' but also from one another, with, for example, one mark showing more information of the friction ridge skin than another, and the substrate or development technique affecting the visibility of features.

The fingerprint examiner's task

2.40. The issue for the examiner in comparing a mark with a print is whether an individual can be distinguished based on the material left as the mark and the material available as the print.

2.41. The comparison the fingerprint examiner makes is of "degraded information"[32] compared to the information which would be gathered ideally by looking at the finger itself. Both mark and print are merely impressions of finger ridge detail, each of which is a more or less partial reproduction of the friction ridge detail in the skin subject to a number of distortions due to the manner of deposition, the surface on which the deposition took place and the means of development and capture of the impression.

2.42. Whether or not fingerprints are in fact unique (i.e. whether the characteristics of a fingerprint, or more relevantly a small part of a fingerprint, may be shared by anyone else) is currently under debate[33] but, as far as fingerprint comparison work is concerned, "[t]he real issue is more on the distinguishability than on the uniqueness. It is how good examiners are in their capacity to distinguish marks and prints when they come selectively from the same persons or from different persons."[34]

2.43. When carrying out a comparison, examiners require to be able to distinguish between (a) 'within source' variations and (b) 'between source' variations in order to ascertain whether a mark and print are from the same donor. The existence of a between source variation would exclude a match. Assuming that there is no between source variation, the examiners require to ascertain the similarities and to distinguish between those that may be common and those that are 'sufficiently' discriminating to individualise. The exercise depends in part on the quality of the impressions and the skill of the examiner: "distinguishability or variability of prints/marks depends crucially on the examination method but also on the intrinsic qualities of the prints/marks to display selective features (extensiveness, clarity, etc.)."[35]

Opinion not fact

2.44. The permanence (or persistence) and uniqueness of friction ridge detail in skin mean that fingerprints can provide a reliable basis for identifying an individual. Whether or not any particular individual can be reliably identified from a particular crime scene mark involves consideration of a number of compounding variables, including (1) the skill, training and aptitude of the particular fingerprint practitioner, (2) the quality of the crime scene mark and the print of the known individual and (3)

31 ED_0005 page 19
32 Professor Champod 25 November page 41
33 EC_0001 - The Current Position of Fingerprint Evidence – A Literature Review. C. J. Lawless, I. C. Shaw and J. Mennell, School of Applied Sciences, Northumbria University (the literature review prepared for the Inquiry), pages 8-9
34 Professor Champod 25 November page 41
35 ED_0005 page 17

the criteria applied in determining whether any particular combination of matching ridge characteristics is ‘sufficient’ for individualisation.

2.45. The decision whether or not a mark can be individualised is potentially a complex one calling for a series of subjective judgments on the part of the examiner. The decision is one of opinion, not fact.

2.46. Further detail on the variability of impressions is given in chapter 19. The subjective questions that require to be considered by an examiner carrying out a comparison are discussed in chapter 35 and the background to ‘sufficiency’ (at one time addressed in the UK by the ‘16-point standard’ and now by the ‘non-numeric’ approach) is given in chapters 32 and 33.

Part 1

The Narrative

Part 1

The Narrative

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CHAPTER 3

THE INVESTIGATION AT THE CRIME SCENE

Introduction

3.1. The narrative begins with an outline of initial events at the scene in the hours after the discovery of the body of Miss Ross, and continues with an account of salient aspects of the murder investigation at the scene.

3.2. The conduct of the murder investigation by Strathclyde Police was not within the scope of the Inquiry save where its review was necessary to consider whether any deficiency in the investigation had been relevant to the detection and identification of the marks with which the Inquiry was concerned. In that context there were three specific matters that I considered to be relevant and addressed.

3.3. The first relates to criticisms of the forensic examination made by Mr David Ferguson, a scene of crime officer, in an e-mail that he sent to Mr McKie in January 2000[1] suggesting that the forensic examination had been delayed pending the result of the post-mortem, because of the possibility that Miss Ross's death had been by suicide, and also criticising the choice of aluminium powder as the first powder used to detect fingerprints.

3.4. These criticisms are linked to an associated issue concerning the presence of uniformed officers inside the house on the first night of the investigation, that gave rise to the possibility of contamination of evidence and, in particular, the possibility that Y7 might have been made by some officer other than Ms McKie.

3.5. Finally, a specific issue was raised by the evidence of Mr Michael Moffat which suggested that Y7 may have been a mark made by a specific police officer, Detective Constable Gary Gray, when he touched the door-frame as the body of Miss Ross was being removed.

3.6. The account of the first few hours is taken mainly from statements to the Mackay enquiry, many of which have not previously been published, and from the scene entry log. Unlike statements made to this Inquiry those who gave them to the Mackay enquiry did not have an opportunity to check them for accuracy and their statements were not signed or given under oath, and there were questions over the accuracy of the scene entry log. Nevertheless these sources serve to provide a general outline in relation to matters which are not controversial and about which the Inquiry did not require to take fresh evidence.

The evening of 8 January 1997 and overnight

The finding of Miss Ross's body

3.7. On Wednesday, 8 January 1997, Miss Ross was found dead in her home in Kilmarnock. The post-mortem next day established that she had died as a result of multiple stab wounds to her head and neck. She was 51 years old.

1 CO_1327

3.8. Miss Ross's death was investigated on behalf of the Crown by the procurator fiscal in Kilmarnock and Strathclyde Police. Miss Ross had lived at 43 Irvine Road, Kilmarnock, with her mother who had died in 1989 and her father who had died in 1991. After their deaths she lived alone. Miss Ross had worked as a clerk with the Royal Bank of Scotland in Kilmarnock until around 1982 when she took early retirement.

3.9. Miss Ross's house was a semi-detached bungalow that had been extended twice. The more recent of these was in 1995, when she had added a porch at the front door, a shower-room and living accommodation in the roof space. The latter appeared virtually unused since their installation.

3.10. Miss Ross had last been seen about 16:00 on Monday, 6 January 1997. Two days later her cousin, Miss Marion Campbell, became concerned when Miss Ross did not answer her telephone calls[2] and Miss Campbell contacted a neighbour, Mr Alan Kinnaird,[3] who kept a set of keys for the house. At about 18:00 on 8 January Mr Kinnaird went in and found the body of Miss Ross lying in a ground floor bathroom.[4] He immediately summoned the emergency services.

3.11. Miss Campbell and her brother Mr James Campbell,[5] who had already been on their way to Irvine Road, then arrived. Mr Kinnaird went back into the house accompanied by Mr Campbell. When they came out all three assumed that Miss Ross must have committed suicide.[6]

3.12. There was no sign of forced entry to the house. At the front, where Mr Kinnaird went in, there were three entrance doors, one of which Mr Kinnaird had to unlock to gain entry. The back door was locked with the keys in place on the inside.[7] The sequence of opening and unlocking the front doors was something about which Mr Kinnaird would later be questioned by Ms McKie and her police partner Detective Sergeant William Shields.

The first hour

3.13. The emergency services, both ambulance and police, were on the scene within minutes.

3.14. The first two police officers to arrive, Police Constables Hope[8] and Stirling,[9] were met by Mr Kinnaird and Mr Campbell and told that Miss Ross had committed suicide. The ambulance crew showed them the body. A pair of black handled scissors was deeply embedded in the neck and a blood stained cutlery knife, with the blade bent to an angle of 90 degrees, was lying beside the left foot.[10] It was

2 CO_3171 and CO_3173 Statements of Miss Campbell from original police investigation
3 CO_3180 Statement of Mr Kinnaird from original police investigation
4 The plans of the locus held by the Inquiry are DB_0014 and CO_1425
5 CO_3177 Statement of Mr Campbell from original police investigation
6 CO_3173 Statement of Miss Campbell from original police investigation and CO_3177 Statement of Mr Campbell from original police investigation
7 CO_3180 Statement of Mr Kinnaird from original police investigation
8 CO_1257 and CO_1258 Mackay enquiry statements of Mr Hope
9 CO_1271 Mackay enquiry statement of Ms Stirling
10 CO_2922 Statement of Mr Hope from original police investigation

clear that Miss Ross was dead and as the death "was obviously suspicious" the officers summoned a supervisory officer and the CID.[11]

3.15. The on-call GP attended[12] and, when three detective constables arrived, the ambulance crew, the doctor, Mr Kinnaird and Mr Campbell were all at the scene. One of the three detectives, Detective Constable Wallace, went and viewed the body.[13] He "very quickly" formed the opinion that Miss Ross had been murdered, and asked those present if they had touched anything or been anywhere. One of the ambulance crew told him that he had moved a vacuum cleaner to allow access to give them more room to work, and one had used the telephone. Mr Wallace instructed everyone to leave the house, and he looked in each room on the ground floor to check for signs of disturbance or forced entry. He left the house, met Mr Gray who had arrived at the house and gave him control of the locus.[14]

3.16. Mr Hope and Mr Gray,[15] wearing gloves, "carried out a cursory interior check of the locus returning out to the front on being satisfied that no-one was inside." Neither Mr Hope nor Ms Stirling had been wearing gloves when they were inside earlier.[16]

3.17. As Mr Wallace was leaving "the locus" he met[17] the police surgeon Dr Lennox[18] who entered and spoke with Mr Gray. This was about 18:45.

3.18. Prior to this at about 18:30, two other police officers had arrived, Sergeant McVicar[19] and Inspector Reilly.[20] The ambulance had gone by then. Mr McVicar decided no persons further should enter the scene and he and Mr Reilly installed barrier tape around the entire locus. Although Mr Hope had been recording information in his notebook, no log had been kept up to this point and Mr McVicar created one in the form of blank A4 sheets of paper held within his clipboard. He then arranged for a uniformed police officer, Constable Jamison,[21] to attend for log-keeping duty. Mr Jamison took up position "outside the tape on the public footpath, outside the locus." Shortly after that, about 18:50, Dr Lennox pronounced life extinct.[22]

3.19. Most of the police officers who attended the scene did not remain for long. It would appear that a total of ten or eleven people were inside the house beyond the porch at some point during the first hour, at a time when no, or limited, protective clothing was being worn.

The first evening

3.20. At about 18:30 Detective Chief Inspector Stephen Heath had been called from home and briefed at Kilmarnock police office by one of the officers who had attended the scene. "He informed me that there was an inference of suicide

11 CO_1257 Mackay enquiry statement of Mr Hope
12 CO_2277 Mackay enquiry statement of Mr Richards (GP)
13 CO_1210 and CO_1211 Mackay enquiry statements of Mr Wallace
14 CO_1210 Mackay enquiry statement of Mr Wallace
15 CO_1090 and CO_1091 Mackay enquiry statements of Mr Gray
16 CO_1258 Mackay enquiry statement of Mr Hope
17 CO_1210 Mackay enquiry statement of Mr Wallace
18 CO_2361 Mackay enquiry statement of Ms Lennox
19 CO_1252 Mackay enquiry statement of Mr McVicar
20 CO_2261 Mackay enquiry statement of Mr Reilly
21 CO_1248 Mackay enquiry statement of Mr Jamison
22 CO_2361 Mackay enquiry statement of Ms Lennox

although his assessment of the situation was that the deceased had been murdered. In view of this I instructed that no other persons enter the house and arranged for a photographer, forensic scientist and a pathologist to attend at my office to be briefed of the circumstances prior to attending the locus. This is my normal practice. I also informed the duty fiscal however he elected not to attend."[23]

3.21. At about 19:25 Police Constable Ellis took over the log-keeping from Mr Jamison. When she arrived "there was not any activity in the house."[24] As noted above, by this time detectives had attended and the ground floor and then the whole house had been checked through briefly; Mr Kinnaird and Mr Campbell, the ambulance crew, the two police officers first on the scene, other officers, and the on-call GP and police surgeon had all come and gone; and a tape cordon was in place.

3.22. Mr Moffat, a scene of crime officer, arrived about 20:10 followed about 20 minutes later by Mr Heath with a pathologist Dr Marie Cassidy and a forensic scientist from Strathclyde Police forensic science laboratory, Mr Martin Fairley.[25] Detective Superintendent Malcolm and Detective Inspector Alexander McAllister arrived shortly after this.

3.23. Mr Fairley carried out an examination for blood in the area of the bathroom, which was off the hall. As well as blood in the immediate vicinity of the bathroom, he observed blood on a vacuum cleaner in a nearby bedroom.[26]

3.24. Mr Moffat was at the scene until the early hours of 9 January. He made a video of the inside of the house[27] and took a series of still photographs of the scene and of the body.[28] He placed metal tread plates on the porch floor for the use of those who had to enter.[29]

3.25. Mr Heath was aware of the suggestion that there was a possibility of suicide and his initial impression was suicide as there was no sign of forced entry. He had some recollection of the pathologist remarking that she had seen worse injuries in cases of suicide.[30] However, murder was a strong possibility and he said that he took action at the highest level, with a strategy beginning that night involving control of the scene, house-to-house inquiries, seizure of clothing and interviewing of witnesses. He approached it as a very suspicious death but official designation as a murder investigation, and the administrative and other steps associated with that, had to await the post-mortem results.[31]

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23 CO_1171 Mackay enquiry statement of Mr Heath
24 CO_1268 Mackay enquiry statement of Ms Ellis
25 CO_1225 Mackay enquiry statement of Mr Fairley
26 CO_1225 Mackay enquiry statement of Mr Fairley
27 FI_0003 paras 7 and 13 Inquiry Witness Statement of Mr Moffat. The video, edited to remove potentially distressing images, was shown at the Inquiry hearing on 10 June (see Mr Moffat 10 June page 136ff) but it has not been published on the Inquiry website. Relevant images from production ST_0003 are on the website.
28 FI_0003 para 14 Inquiry Witness Statement of Mr Moffat. The photographs later became production 13 in *HMA v Asbury* (ST_0003).
29 FI_0003 para 9 Inquiry Witness Statement of Mr Moffat and Mr Moffat 10 June page 130ff
30 Mr Heath 9 June page 19
31 FI_0013 paras 28-30 Inquiry Witness Statement of Mr Heath, Mr Heath 9 June pages 20-22, 103-104 and FI_0068 para 21 Inquiry Witness Statement of Mr McAllister

3.26. He instructed that the house was to be secured and kept under guard. No-one was to be admitted to the house, save those involved in forensic work. He said he would not have given detailed instructions since the decision as to how to guard a locus was one for officers junior to him, and this would have been left to Mr McAllister and Mr Gray. But he would have expected one or two uniformed officers, dependent on resource availability, to be assigned and for their supervisor to manage the task. Two officers was best practice, and covered matters such as breaks, but was not always achievable due to competing demands for limited resources.[32] Among other steps, the locus was to be videoed and the body was to be photographed and taken to the mortuary.

3.27. So far as fingerprints were concerned, they needed to be addressed as part of a forensic strategy. Since it was an inside location and the house was to be secured Mr Heath was confident that the evidence would be preserved overnight. Once the body had been removed it was not a time to call out resources that would be tired by the next morning and as a result unable to be engaged full time in the task. A forensic strategy needed to be designed the next morning. The results of a post-mortem could also have an effect on this, for example on the order in which a forensic examination was carried out.[33]

3.28. Mr Heath was among those inside the house that evening.[34] For Mr Heath, Dr Cassidy and Mr Fairley the log recorded: “arrive locus enter house” at 20:31 and “depart locus” at 23:10.[35] Mr McAllister said that during the time he was at the scene that evening he did not enter the house.[36] The log recorded for him: “arrives at locus” at 20:40 and that, with others, he left to do door-to-door enquiries at 21:00.[37] The log-keeper remained outside, on the pavement at the gate, and would have recorded anyone who entered the scene, i.e. the garden/front ground and not just the house. Nothing appears to turn on this point of detail however it appears that there was no inconsistency. Mr McAllister could have entered the locus but not the house. Insofar as there is any inconsistency with the log, I prefer the sworn testimony of Mr McAllister that he was at the scene but not in the house.

Overnight

3.29. In the period after Mr Heath and others left at 23:10 Mr Moffat, the scene of crime officer, continued his work, and around midnight undertakers removed Miss Ross’s body to the mortuary.

3.30. Mr Gray left the scene at the same time as the undertakers to accompany Miss Ross’s body to the mortuary. Mr Moffat departed about 01:30, leaving only the uniformed officers at the locus.[38]

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32 FI_0013 para 23 Inquiry Witness Statement of Mr Heath and Mr Heath 9 June pages 22, 24
33 Mr Heath 9 June pages 21-22
34 FI_0013 para 10 Inquiry Witness Statement of Mr Heath
35 SG_0537 – handwritten log; a typed version is SG_0538. Mr Malcolm was also recorded as leaving at 23:10.
36 Mr McAllister 12 June page 112, Mr McAllister 16 June page 4 and FI_0068 paras 11, 14 Inquiry Witness Statement of Mr McAllister
37 SG_0537
38 SG_0537 and FI_0003 para 25 Inquiry Witness Statement of Mr Moffat

Mr Moffat and the possibility that Y7 was the mark of Mr Gray

3.31. An incident from the first night was to become a concern to Mr Moffat when he became aware, shortly before the trial in *HMA v McKie*, that the identification of Y7 was disputed. He believed that Y7 could have been left accidentally by Mr Gray and sought to alert his superiors to this.[39]

3.32. At around midnight when the two undertakers attended and took Miss Ross's body to the mortuary,[40] Mr Gray and Mr Moffat were both inside the house and Mr Moffat's recollection was that he and Mr Gray helped the undertakers remove Miss Ross's body.[41] Mr Moffat explained that when they were lifting the body he noticed Mr Gray leaning on the doorway with his left hand resting on the door-frame of the bathroom. Mr Moffat said that at the time he told Mr Gray to watch where he was leaning. Later he noticed that the thumb of a glove that Mr Gray was wearing was torn.[42] He brought this to the attention of Mr Gray, and suggested to Mr Gray that he should let his boss know what had occurred.

3.33. Mr Gray's recollections of that night have varied. In some statements he is noted as saying that the undertakers placed the body of Miss Ross in the bag[43] and that he may have been involved in moving the body.[44] However, in his Mackay statement he is noted as saying that he could not recall directly being involved in removing the body but he may have been involved. In his statement to the Inquiry he said that he did not recall moving the body from the bathroom.[45] In oral evidence, however, he did recall moving the body from the bathroom with Mr Moffat,[46] having thought further since giving his statement.[47] He acknowledged the time taken and efforts made by the Inquiry to obtain a signed statement from him[48] and he did not remember giving a statement during the Mackay enquiry.[49] A suggestion was put to him by counsel for Ms McKie to the effect that he had altered his position in oral evidence because he knew that the Inquiry had made arrangements to have his fingerprints compared with Y7. In oral evidence he did not recall touching the door-frame, or Mr Moffat warning him about a burst glove. He did, however, concede that it was possible that these events might have occurred.

3.34. In light of Mr Moffat's particular concerns I arranged for the fingerprints of Mr Gray to be taken by Livescan and inked impression[50] and compared with Y7 by the Metropolitan Police. They reported that Mr Gray's prints did not match Y7.[51] Mr Gray's prints had earlier been compared against Y7 and eliminated by examiners from the National Training Centre in Durham in the course of the Mackay enquiry.

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39 See chapter 4
40 SG_0537
41 FI_0003 paras 20-24 Inquiry Witness Statement of Mr Moffat
42 Mr Moffat 10 June page 150
43 CO_3274 Statement of Mr Gray from original police investigation and CO_1090 Mackay enquiry statement of Mr Gray
44 CO_1090 Mackay enquiry statement of Mr Gray
45 FI_0069 para 16 Inquiry Witness Statement of Mr Gray
46 Mr Gray 12 June page 68
47 Mr Gray 12 June page 72
48 Mr Gray 12 June pages 74-76
49 CO_1090 and CO_1091 Mackay enquiry statements of Mr Gray
50 FI_0087h and FI 0088h
51 Senior Counsel to the Inquiry 10 July page 85 and MP_0002

3.35. Although I am satisfied that Mr Gray was not the donor of mark Y7, I find that he did touch the door-frame and that Mr Moffat did speak to him as Mr Moffat recalled. On this point I regard Mr Moffat as credible and reliable. When giving evidence on oath, Mr Gray did not disagree with the proposition that Mr Moffat's account was in material respects correct.

Presence of other officers in the house

3.36. Police Constable Hutchison[52] took over log-keeping from Ms Ellis at about 23:10. The log recorded for Mr McAllister: 23:15 "enters locus" and at 23:20 "departs locus."[53] At the time of this second short visit Mr McAllister observed that a cordon was already in place and an officer was noting details of those that attended.[54] At this time the log-keeper was still stationed outside on the pavement.[55]

3.37. It was soon after this that a change in arrangements occurred, and the log-keepers moved inside. By that time, an instruction had been given that the house should be secured by two uniformed officers[56] and Mr Hutchison was joined about 23:30 by Police Constable Lynne Nicol. She brought with her the instruction that they were to take up position in the sitting room of the house.

3.38. The Inquiry took a statement from Ms Nicol, now Ms McNally.[57] She had been instructed by the staff sergeant at Kilmarnock Police Office to attend the scene. On arrival they were told by Mr Gray to take up position in the living room and not to move from there.[58] They were to keep a log of those who came and went from the scene. The officers stationed themselves in the living room, the room that was first on the left as one entered the hall.

3.39. Ms Nicol said she was in the hallway while the body was being removed.[59] Other than the uniformed officers' sergeant who called round briefly there were no visitors overnight. Another two pairs of officers in turn took over the log-keeping duties overnight and these officers also based themselves in the living room.

3.40. Mr McAllister said that after removal of the body the house was secured and there was, at the very least, a police guard by the door to prevent anyone from accessing the house. He said that he was not directly involved in this instruction and so did not know when a guard or log-keeper would have been deployed.[60] He had no recollection of uniformed officers being in the living room at 43 Irvine Road and in particular had no recollection of coming across any inside when he arrived on 9 January.[61] He would have expected them to have remained either outside the house or in the porch and not to have been any further inside than the porch.[62]

52 CO_1294 Mackay enquiry statement of Mr Hutchison
53 SG_0537
54 CO_2022 Mackay enquiry statement of Mr McAllister
55 CO_1242 Mackay enquiry statement of Ms Nicol
56 CO_1147 Mackay enquiry statement of Mr Dunipace
57 FI_0107 Inquiry Witness Statement of Ms Nicol/McNally
58 FI_0107 paras 5–9 Inquiry Witness Statement of Ms Nicol/McNally
59 FI_0107 para 10 Inquiry Witness Statement of Ms Nicol/McNally
60 FI_0068 para 15 Inquiry Witness Statement of Mr McAllister
61 Mr McAllister 16 June pages 45-46
62 Mr McAllister 12 June pages 114-115

3.41. By the morning of 9 January the uniformed officers had moved to the porch. Police Constable Baird, who was on duty when Mr McAllister arrived that day, said that he told her and her colleague to take up a position outside the house.[63] The evidence is that from the afternoon of 9 January the log-keepers were stationed in the front porch of the house and a single officer, rather than two officers, was on duty.[64]

Comment on presence of officers in house

3.42. Mr Heath learned of the presence of uniformed officers in the house that first night only while he was giving oral evidence to the Inquiry. He was surprised, as any room in the house would have been of importance to the investigation and he had left instructions that the locus was to be protected.[65]

3.43. I am satisfied that uniformed officers were present in the house during the night of 8 – 9 January 1997. This represented a departure not only from best practice, but also from common practice at the time.[66] There was a risk attached to the presence of officers who did not need to be within a crime scene. They might accidentally damage or remove a mark of significance.[67] Potential scientific and other scene examination was not confined to the immediate area where Miss Ross's body was found, as the attack on her had not necessarily taken place there. Only those with good reason to go inside the house should have done so.[68] As Mr Heath remarked, having numbers of officers within a house which was a crime scene was not good practice. In particular there could be no call whatsoever for officers who were guarding the scene to enter it, and that should not have occurred.

3.44. Extensive comparisons were carried out by Mr Michael Thompson and Mr Geoffrey Sheppard of the National Training Centre at Durham in the course of the Mackay enquiry. In total the prints of 191 police and scene of crime officers and other persons potentially relevant to Y7, including Mr Gray, were compared against the mark Y7. None was found to have made that mark. Mr Sheppard and Mr Thompson confirmed their position to the Inquiry.[69]

3.45. Accordingly the presence of the various officers in the house does not appear to me to have had a bearing on the detection or identification of mark Y7. Any suggestion that one of these officers deposited Y7 can be dismissed.

3.46. For completeness, Mr James Kerr[70] told the Inquiry that he had been concerned that he might have been the donor of the mark Y7. He had been working in the vicinity, including for example helping to take off the bathroom door, and had a concern that his latex gloves appeared to be thin.[71] He was among those whose

63 CO_2098 Mackay enquiry statement of Ms Baird
64 CO_2666 Statement of Ms Halliday from original police investigation and CO_2098 Mackay enquiry statement of Ms Baird
65 Mr Heath 9 June pages 22-25, 103-110
66 Mr Thurley 10 June page 55, Mr Hogg 17 June pages 6-7 and FI_0034 para 14 Inquiry Witness Statement of Mr Hogg
67 Mr Thurley 10 June page 54
68 Mr Heath 9 June pages 25, 104ff and 117ff
69 FI_0206 Inquiry Witness Statement (Supp.) of Mr Sheppard and FI_0207 Inquiry Witness Statement of Mr Thompson, and see chapter 13
70 Then a detective constable – see below.
71 Mr Kerr 18 June page 38

prints were checked and eliminated at Durham during the course of the Mackay enquiry.

3.47. I should record that I heard some evidence about the changes and improvements in crime scene management which had taken place in the period between 1997 and the Inquiry hearings. As I have concluded that the management of the crime scene did not affect detrimentally the detection and identification of the fingerprints with which the Inquiry is concerned, I have not reported at length on this matter. Even had I found it necessary to consider this matter in more detail, I would not have been minded to make any recommendation for change, given that crime scene management has changed significantly since 1997. It suffices to say that there is now a formal role of crime scene manager, and specific training for police officers who are to fulfil that role.

9 – 10 January

9 January

3.48. On 9 January the investigation was designated a murder investigation, and, as part of a forensic strategy, fingerprint examination at the crime scene began.

Ms McKie

3.49. Ms McKie was one of the enquiry team from 9 January. Her involvement in the investigation is considered separately in chapter 14.

Scene of crime examination

3.50. Chief Inspector Ian Hogg, as Head of the Identification Bureau, was informed of the death on 9 January and told that it could be a murder or possibly a suicide.[72] The fact that he went to the scene was, he said, indicative that it was being looked at as a murder by his department as he would not go to a suicide at that stage.[73]

3.51. He was recorded as arriving at the scene at 10:55 and was accompanied by Police Constable David Thurley from the Identification Bureau. Mr Stuart Wilson, Mr Graham Hunter and Mr Ferguson, scene of crime officers and Mr McAllister were all recorded as attending then also.[74] The photography had been completed overnight and Mr Hogg assumed, correctly as it turned out, that a forensic scientist had also been there.[75]

3.52. Mr Hogg said he assessed the scene and decided what resources were required. He realised that a full examination would take some time[76] and before he left a strategy had been agreed.[77]

3.53. A lot of loose material was lying about on the ground floor and Mr Hogg decided that it was not the best use of resources to have four scene of crime officers there before the productions had been removed so he sent two of them away until this

72 FI_0034 para 14 Inquiry Witness Statement of Mr Hogg
73 Mr Hogg 17 June page 6
74 SG_0537
75 FI_0034 para 16 Inquiry Witness Statement of Mr Hogg and Mr Hogg 17 June pages 4-5
76 FI_0034 paras 17-18 Inquiry Witness Statement of Mr Hogg
77 FI_0034 para 31 Inquiry Witness Statement of Mr Hogg

was completed.[78] They were Mr Wilson,[79] who said that he understood this to be the reason for their leaving, and Mr Hunter.

3.54. Mr Hogg, Mr Wilson and Mr Hunter were all recorded as leaving at 11:30.[80]

3.55. This left Mr Thurley, the lead scene of crime examiner, and Mr Ferguson. In a note written by Mr Thurley after the examination he indicated that they were instructed by Mr Heath and Mr McAllister on that morning to treat the incident as murder until the post-mortem findings were known.[81] Mr Ferguson also said that they were told to treat the incident as a murder until the cause of death was confirmed. Generally with a suicide there was no need for a fingerprint examination but he thought the fact that two officers had been sent away and he and Mr Thurley were to do a limited examination was an indication that suicide was being considered.[82]

3.56. Mr McAllister was present and a party to the agreed strategy.[83] With photography completed, the next stages were a further forensic examination for blood or other biological material followed by an examination for latent fingerprints.[84] He explained that police procedures when a death is deemed to be suspicious are, in effect, on a scale. “Sometime the suspicion might simply be some minor unexplained bruising which is noted by the police casualty surgeon. So the level of suspicion can be very low. In this case the level of suspicion was very high indeed, so we were effectively treating it as a homicide notwithstanding the fact that ultimately it was for the pathologist to provide the cause of death.”[85]

3.57. Mr Hogg instructed Mr Thurley and Mr Ferguson to begin their examination in the hall as it was an area that was relatively free of loose items.[86]

3.58. Mr McAllister, Mr Thurley and Mr Ferguson were recorded as having left at 12:10, and Mr Thurley and Mr Ferguson as having returned again at 12:55 and remaining until 16:30.

3.59. Mr Ferguson began the scene of crime examination around the area of the porch and Mr Thurley in the bathroom area[87]and they continued their examination that day at various parts of the property.

3.60. A post-mortem examination of the body of Miss Ross was being undertaken and around 14:00 Mr Heath learned that the cause of death was certified as multiple stab wounds to the head and neck. The investigation became a murder inquiry led by Mr Heath as the senior investigating officer with Mr McAllister as his deputy.[88]

78 Mr Hogg 17 June page 6
79 Mr Wilson 17 June page 96
80 SG_0537
81 Mr Thurley 10 June page 64
82 FI_0010 paras 8-10 Inquiry Witness Statement of Mr Ferguson
83 FI_0068 para 24 Inquiry Witness Statement of Mr McAllister
84 FI_0068 para 25 Inquiry Witness Statement of Mr McAllister
85 Mr McAllister 12 June page 113
86 FI_0034 paras 18-19 Inquiry Witness Statement of Mr Hogg
87 FI_0010 para 14 Inquiry Witness Statement of Mr Ferguson
88 FI_0013 paras 31-33 Inquiry Witness Statement of Mr Heath, FI_0068 paras 19-20 Inquiry Witness Statement of Mr McAllister and Mr McAllister 12 June page 96

3.61. When Mr Hogg was told about the post-mortem findings that afternoon, he spoke to the forensic science department to make sure that there was nothing else that they needed from the locus. He was told that they wished to return and have another look. He then instructed Mr Thurley and Mr Ferguson to stop the work they were doing pending this further forensic examination. At about 16:00 Mr Thurley received a call from the forensic laboratory and was asked to take possession of a banister.[89]

3.62. Mr Ferguson's recollection was that the door-frame of the bathroom would have been dusted not long before they received the telephone call.[90] At this stage only aluminium powder had been used.[91] Mr Thurley and Mr Ferguson had covered any marks they had found with adhesive tape to protect them. They stopped the dusting and taping at this point.[92] As well as the banister, Mr Thurley removed certain other items including the bathroom door (see below), leaving the door-frame in place.[93]

3.63. Mr Thurley said that about fifteen marks were found on and around the bathroom door using aluminium powder.[94]

3.64. Detective Constable Kerr was put in charge of investigations at the house with Police Constable Graeme McIntyre to assist.[95] They were to co-ordinate with the forensic scientists and scene of crime officers the extraction of evidence from the house and to co-ordinate the search of the house.[96] It was clear that this would be a big job.[97] Everything needed to be logged, photographed, labelled and a system of examination and production, transit and prioritisation put in place. Detective Constable Kirkland and Police Constable Alan Stevens were put in charge of the productions, based at the police station in a productions room that was kept locked.[98] An instruction was issued that with the exception of those officers and scene of crime and identification bureau staff other people were not to enter the house.[99]

3.65. Mr McAllister was to take overall control of this and direct the process. At that time there was not a dedicated role for forensic liaison, and Mr McAllister was specifically assigned to manage the relationship with the identification bureau, SCRO and the laboratory on a daily basis. These support functions were very important. Mr Heath said that at the time there were around 80-90 murders a year

89 FI_0037 paras 23, 33 Inquiry Witness Statement of Mr Thurley
90 FI_0010 para 19 Inquiry Witness Statement of Mr Ferguson
91 FI_0010 para 19 Inquiry Witness Statement of Mr Ferguson, FI_0033 para 33 Inquiry Witness Statement of Mr Stevens and Mr Thurley 10 June pages 28-29
92 Mr Thurley 10 June pages 27-28
93 FI_0044 para 21 Inquiry Witness Statement of Mr Kerr, FI_0037 para 23 Inquiry Witness Statement of Mr Thurley and Mr Thurley 10 June pages 28, 37
94 FI_0037 paras 32 and 46 Inquiry Witness Statement of Mr Thurley, DB_0003 and SG_0402
95 FI_0041 para 5 Inquiry Witness Statement of Mr McIntyre
96 FI_0013 para 71 Inquiry Witness Statement of Mr Heath and FI_0044 para 7 Inquiry Witness Statement of Mr Kerr
97 FI_0013 para 71 Inquiry Witness Statement of Mr Heath, FI_0068 para 23 Inquiry Witness Statement of Mr McAllister, FI_0034 para 18 Inquiry Witness Statement of Mr Hogg and FI_0037 paras 18-19 Inquiry Witness Statement of Mr Thurley
98 FI_0013 para 71 Inquiry Witness Statement of Mr Heath and FI_0033 paras 4ff Inquiry Witness Statement of Mr Stevens
99 FI_0013 para 51 Inquiry Witness Statement of Mr Heath and FI_0068 para 24 Inquiry Witness Statement of Mr McAllister

in Strathclyde and it was essential for these relationships to be properly managed so that things were dealt with in a structured way.[100]

3.66. At a briefing at 16:10 the video of the locus was shown to help officers understand the scene without needing to enter it.[101] A plan of the building was obtained and displayed in the general office and in the incident room for the information of all staff. Photographs and the video of the locus were also available for enquiry officers.[102] The Inquiry recovered both a sketch plan drawn by Mr Thurley[103] and an annotated building works plan.[104]

The removal of the bathroom door

3.67. It is convenient to mention here an issue that arose concerning Y7. This was whether any inference could be drawn as to when the mark was made from the fact that the bathroom door was removed from the house on 9 January.

3.68. Ms McKie, who viewed Y7 at the scene,[105] thought that the mark could only have been made after the door had been taken off and that she mentioned this to Mr Heath and the others who were present.[106] Mr Shields recollected this suggestion being made.[107]

3.69. The Malcolm report to the procurator fiscal dated 1 April 1997[108] included a brief reference to the door. It said that an opinion had been sought (from SCRO) on what the person might have been doing to leave the mark in the position it was found. The report noted that the opinion was that the bathroom door was off, but that the fingerprint officers were not prepared to include such an opinion in their report.[109] It continued that Chief Inspector Hogg of the Identification Bureau was not in a position to offer "an opinion in evidence" as to what the person was doing when the print was left however he was of the opinion that the door was off, and "significantly this means that the print may not have been present when the aluminium powder examination was carried out."[110]

3.70. Mr Hogg's opinion on this point was explored with him during his oral evidence to the Inquiry. He had not specifically seen Y7 at the scene[111] and it emerged that he thought that Y7 had been found in what he called "the door check" i.e. the strip of wood at the hinges that would be covered over completely when the door was closed. If there, the mark could not have been made with the door shut and would have been difficult to make with the door in place but open. Y7 was not, however,

100 FI_0013 para 72 Inquiry Witness Statement of Mr Heath and FI_0068 paras 31-37 Inquiry Witness Statement of Mr McAllister
101 FI_0013 para 49 Inquiry Witness Statement of Mr Heath
102 CO_1256 Mackay enquiry statement of James Thomson (He was Officer Manager and in charge of the incident room and records for the case - FI_0013 paras 33-38 Inquiry Witness Statement of Mr Heath.)
103 DB_0014
104 CO_1425
105 See chapter 7
106 FI_0071 para 70 Inquiry Witness Statement of Ms McKie
107 FI_0080 para 51 Inquiry Witness Statement of Mr Shields
108 CO_0998 and CO_3850 pdf page 60 para 5.2
109 See chapter 8
110 CO_3850 pdf page 60 paras 6.4 and 6.5
111 Mr Hogg 17 June page 21 and FI_0034 para 52 Inquiry Witness Statement of Mr Hogg - the only time he specifically saw it was when the procurator fiscal brought the door-frame to his office.

on that strip of wood, but on the frame that remained visible with the door shut[112] and Mr Hogg agreed that this meant that the mark could have been deposited with the door in place.[113]

3.71. In the course of Mr Moffat's evidence on 11 June, he demonstrated, using a doorway in the hearing room similarly configured to the bathroom doorway at the locus, that it was indeed possible for an individual to touch a strip of wood in an equivalent position with the door in place.[114]

3.72. Having considered whether the position of the mark was such that it could not have been made with the door in place I am satisfied on the evidence that the mark could have been made either with the door in place or after it had been removed.

10 January

3.73. On 10 January the 15 marks found on 9 January were lifted.[115] Two other marks were listed in the marks worksheet[116] which, according to the numbering of rooms on Mr Thurley's sketch of the floor plan of the ground floor,[117] were also in the vicinity of the bathroom.[118] No marks were recorded as being found on the right-hand surface of the door-frame at that time, which is where Y7 and Z7 were subsequently found on 14 January.

14 – 16 January

14 January – the discovery of Y7

3.74. On 14 January, scene of crime officers (SOCOs) Mr Moffat, Mr Hunter and Mr Wilson were continuing work at the house when Mr Kerr asked Mr Moffat about a mark on a skirting board in the hall. It had been dusted with aluminium powder but not much detail was showing. Mr Moffat gave it a further dusting with black powder and that seemed to give a good result and the skirting was removed for further examination.[119] Mr Moffat, Mr Hunter and Mr Wilson then decided to do a further examination using black powder of the area within the hallway around the entrance to the kitchen and bathroom,[120] because of the significance of that area.[121]

3.75. The SOCOs described the door-frame as nicotine stained and it was likely to have been contaminated with condensation and grease due to its proximity to

112 See chapter 1 paras 31-32
113 Mr Hogg 17 June pages 16-26
114 FI_1106-A, FI_1106-D and FI_1106-E
115 PS_0019, DB_0003 (the marks worksheet) and SG_0402 (the typed version of DB_0003 Mr Thurley had prepared - FI_0037 paras 29-31 Inquiry Witness Statement of Mr Thurley). Surface left-hand door facing, bathroom door hallside-T2, L/H hall bathroom door facing hallside-U2, eight marks on the surface of hall bathroom door hallside, four marks on I/S surface of hall bathroom door, surface of bathroom door LHS at hallside-D3. Of the 15, SCRO eliminated two as made by Miss Ross and two by relatives and found the other 11 to be fragmentary and insufficient.
116 SG_0402 pdf page 6
117 DB_0014
118 R/H side of bedroom two door-hallside-R2 and R/H side of bedroom two door-hallside-S2. Both were eliminated as the deceased's.
119 FI_0044 para 52 Inquiry Witness Statement Mr Kerr, Mr Moffat 11 June page 38 and FI_0003 paras 34-35 Inquiry Witness Statement of Mr Moffat
120 FI_0019 para 24 Inquiry Witness Statement Mr Wilson
121 Mr Wilson 17 June page 100

the bathroom and kitchen.[122] On 14 January the SOCOs were using portable lights about 18" wide and before Mr Wilson applied the black powder Mr Hunter examined the surface of the door-frame.[123] To the best of Mr Wilson's recollection Y7 was not visible before he started dusting with black powder.[124]

3.76. There were variations among the SOCOs in relation to their recollections of the coverage of aluminium powder in the vicinity. Mr Wilson spoke of a "patchiness" in the overall area that they were re-powdering.[125] Mr Moffat said that it looked to him as if the area where Y7 was found had had a light coating of aluminium powder[126] but it was Mr Hunter's evidence that they could see that the aluminium powder had not taken because paint was showing through.[127] No one of the three of them saw any sign of disturbance such as might have been caused by something touching any powder that was present.[128]

3.77. The dusting with black powder revealed new marks. A total of 12 "impressions" were recorded as having been found in various locations, including Y7, Z7 and A8.[129] Of those 12, two (D8 and E8) were in due course eliminated by SCRO to Miss Ross, while C8 remained listed with no result.[130]

3.78. Mr Moffat noted the location and used arrowheads to depict the orientation of Y7 in his notebook.[131] On page four of his notebook he recorded: "Y7 rhs hallway bathroom door surround 5ft" and then an arrow which he used as a rough guide.[132] He also marked Z7 and made a corresponding entry for A8 which was found on the left-hand side of the bathroom door facing and directly opposite where the other prints were found.[133]

3.79. The arrows that Mr Moffat drew for Y7, Z7 and A8 all pointed upwards. Beneath these three entries he wrote: "possible sweat print appears fresh" however this was, he said, a reference to A8. These were not scientific terms; he used "fresh" to signify a mark that showed up well with good contrast to the surface it was on. He explained that he thought Y7 was "fresh" but Z7 was not, though they could have been deposited at the same time, and that A8 was darker in colour indicating the possibility that it was more recent than the marks of the deceased which he recollected as being very faded and light grey in colour. However, he agreed that there was no reliable way of establishing the age of a print.[134]

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122 e.g. FI_0037 para 35 Inquiry Witness Statement of Mr Thurley
123 Mr Wilson 17 June page 102
124 FI_0019 para 28 Inquiry Witness Statement of Mr Wilson
125 Mr Wilson 17 June pages 100-101
126 Mr Moffat 11 June pages 40-43
127 Mr Hunter 10 June pages 110-111 and FI_0042 paras 19-21 Inquiry Witness Statement of Mr Hunter
128 Mr Hunter 10 June page 113, Mr Wilson 17 June page 102 and Mr Moffat 11 June page 49
129 SG_0402 and FI_0019 para 26 Inquiry Witness Statement of Mr Wilson
130 DB_0003 pdf page 17
131 FI_0003 para 39 Inquiry Witness Statement of Mr Moffat and AA_0002
132 Mr Moffat 11 June page 43
133 Mr Moffat 11 June pages 44-45 and AA_0002
134 Mr Moffat 11 June pages 45-46 and 49, FI_0003 paras 48- 50 Inquiry Witness Statement of Mr Moffat. Because of what he had seen on the night of 8 January, he was thinking that Mr Gray might have made the marks Y7 and Z7, so he associated them together, with perhaps Z7 being made through a glove and Y7 perhaps through a tear in a glove, whereas he did not think of A8 being linked. (Mr Moffat 11 June page 45 and also pages 92 - 93)

3.80. Mr Moffat recorded the finding of these marks on the marks worksheet BY31[135] which was filled in at the scene and accompanied the form 13B that went to the fingerprint bureau[136] along with a number of other impressions and lifts taken that day.[137] There is a difference in the direction of the arrows for A8 as between the entry in the worksheet and in Mr Moffat's notebook. He said that the entry in his notebook would be the more accurate[138] and the arrow should be pointing straight up.[139]

3.81. Mr Moffat took photographs, and the film went for development on 15 January before the photographs went on to SCRO.[140] He confirmed that the Y7 image PS_0002, which was used by the SCRO examiners who first identified Y7, was a copy of a photograph that may have been taken by him.[141] He also confirmed that the negatives of marks Y7-T9 in the envelope ST_0005 were the negatives of the photographs taken by him.[142] These were the first images of Y7.

15–16 January

3.82. Examination at the scene concluded on 15 January[143] and on 16 January Mr Hogg and Mr Thurley visited the locus to confirm completion of the examination. Much of the detail of the investigations carried out by police officers and other personnel during the period from 9 January is not of relevance to the Inquiry.

Commentary

The designation as a murder investigation

3.83. The issue for the Inquiry is whether the fact that the investigation became a murder investigation only after the post-mortem had any bearing on the detection and identification of mark Y7.

3.84. In his evidence to the Inquiry[144] Mr Ferguson accepted that Mr Heath had said at the outset that it was to be treated as a murder however he felt that it was not really treated as such until later on.

3.85. I am satisfied that, while the investigation did not formally become a murder inquiry until after the post-mortem examination, the death was treated as if it could be a murder. The scene was photographed and videotaped, and a forensic scientist (Mr Fairley) was at the scene on the same evening as the body was discovered, and Mr Ferguson accepted this.[145] Mr Heath acted appropriately. The fact that the house was cluttered and that productions required to be recovered before a full scene of crime examination proceeded provides a rational explanation for the two scene of crime officers being sent to other duties on the following morning of 9 January.

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135 FI_0003 para 53 Inquiry Witness Statement of Mr Moffat, DB_0003
136 Mr Moffat 11 June page 47, FI_0003 para 53 Inquiry Witness Statement of Mr Moffat
137 FI_0037 paras 29-31 Inquiry Witness Statement of Mr Thurley. Y7 is listed at pdf page 17 of DB_0003 and pdf page 16 of SG_0402. Re 'lifts' see chapter 19 paras 6 and 20.
138 Mr Moffat 11 June page 48
139 FI_0003 para 58 Inquiry Witness Statement of Mr Moffat
140 FI_0003 para 56 Inquiry Witness Statement of Mr Moffat
141 FI_0003 para 46 Inquiry Witness Statement of Mr Moffat
142 FI_0003 para 47 Inquiry Witness Statement of Mr Moffat
143 CO_1402
144 Mr Ferguson 10 June page 70ff
145 Mr Ferguson 10 June pages 71-72

3.86. There is no evidence that the fact that Miss Ross's death was thought potentially to have been a suicide adversely affected the forensic examination. I am satisfied that the question of whether the investigation was one into murder or suicide had no bearing on the detection or identification of mark Y7.

Y7 being found at second powdering

3.87. Mr Ferguson was critical of the decision by Mr Thurley to begin with aluminium powder on the door-frame and Mr Thurley himself accepted that the contamination of the surface by nicotine and the effects of steam or condensation might have called for the use of black powder.[146] Views differed among the SOCOs as to whether the correct procedure was to start with aluminium powder with the option of using black powder later and practice in that regard is reviewed in chapter 18.

3.88. The SOCOs were asked whether the fact that Y7 was first found at the second examination of the door-frame was consistent with the mark having been made after the aluminium dusting. Mr Hunter said that a conclusion could not be reached on that point because he had seen aluminium touched without a mark being left;[147] and Mr Ferguson said that he was also unable to comment on this matter.[148] Mr Wilson expressed the personal opinion that the mark had been there before the aluminium powdering but in reaching that conclusion he was influenced by the fact that at the same time as Y7 was found other marks identified as having been made by Miss Ross were also found and those must have been in place before 9 January.[149]

3.89. In his report to the procurator fiscal dated 13 May 1998[150] Mr Kent did infer that Y7 must have been placed after the aluminium powdering and that was because aluminium powdering was considered to be so sensitive. That is predicated on a number of assumptions.

3.90. The first is that the sensitivity of aluminium powder is such that it will not 'miss' a fingerprint mark that will be disclosed by black granular powder. Dr Bleay carried out a brief experiment and found that 5-10% of marks were first disclosed on a second examination with black powder.[151]

3.91. The second is that the aluminium powdering of the door-frame had been effective. The recollections of the SOCOs suggest that it had not been effective, or at least not fully effective. That coincides with the observations of those who subsequently examined the door-frame. Mr Swann saw no sign of dual powdering on visual inspection.[152] Mr Kent examined it under an ordinary optical microscope and saw no obvious sign of aluminium powder.[153] In 2009 Dr Bleay examined the door-frame. He observed aluminium powder at the top with the majority being over-powdered with black powder.[154] He proceeded to carry out an examination using optical coherence tomography and found no aluminium on the surface in the

146 FI_0037 para 35 Inquiry Witness Statement of Mr Thurley
147 Mr Hunter 10 June pages 117-118
148 Mr Ferguson 10 June pages 81-82
149 Mr Wilson 17 June pages 103-104 and FI_0019 paras 28-29 Inquiry Witness Statement of Mr Wilson
150 CO_3876
151 Dr Bleay 16 November pages 142-143
152 SG_0285 pdf page 2
153 Mr Kent 7 July pages 30-31
154 Dr Bleay 16 November pages 137-138

vicinity of Y7.[155] Both Mr Kent and Dr Bleay indicated that there might be a number of possible explanations for the absence of aluminium powder, including the contaminated condition of the surface causing the powder not to take. In light of the evidence of the SOCOs that is the most probable explanation.

3.92. In any event, given the absence of evidence of any disturbance to the aluminium powder (if present), there is no necessary inference that Y7 could only have been placed after the aluminium powdering on 9 January 1997.

155 Dr Bleay 16 November page 145ff and EA_0165

CHAPTER 4

THE CONTINUING INVESTIGATION AND THE DETENTION OF MR ASBURY

Introduction

4.1. The sequence of events in the investigation and in the prosecution of Mr Asbury was of interest to the Inquiry insofar as the case against him included reliance on fingerprint evidence, including reliance on QI2 Ross that came to be disputed at a later date. The controversy surrounding Y7 and the significance of the mark QI2 Ross are to be viewed initially in the context of the importance of fingerprint evidence to the prosecution of Mr Asbury.

4.2. This chapter focuses on events external to the fingerprint bureau. The detail of the identification work done by SCRO is discussed separately in chapters 5 and 6.

Outline of the early stages of a prosecution

4.3. In Scotland the investigation and prosecution of crime is a matter for the Crown, and the police act under the general direction of the procurator fiscal during an investigation.[1]

4.4. Police officers can on their own authority detain individuals for questioning and if they have grounds to do so they can arrest and charge the individual. The police then make a report to the procurator fiscal.

4.5. In the more serious cases where an individual may be prosecuted on indictment the court process starts with the procurator fiscal framing a 'petition' detailing the charge. There are two hearings in court. At the first hearing the accused appears in private before a sheriff on petition and may be remanded in custody pending further enquiries. The second hearing occurs not later than eight clear days after the first hearing. At the second hearing, the sheriff may fully commit the accused for trial and in 1997 a charge of murder would invariably have resulted in the accused being remanded in custody.

4.6. The decision to place the accused on petition is generally a matter for the local procurator fiscal and Mr John McMenemy, Senior Procurator Fiscal Depute (retired), explained that such a decision was based on whether there was credible information in the police report.[2]

4.7. The decision whether to make an application to the sheriff for the accused to be fully committed was for Crown Counsel. The local fiscal was required to submit a report to Crown Office within three days of the accused first appearing on petition. The purpose of this report, known as a "three day report", was to inform the decision by Crown Counsel, who had to consider whether there was a corroborated case.[3] The decision was not taken lightly. Mr Frank Crowe, formerly Deputy Crown Agent,[4] put it in this way: "You were really imprisoning someone for the equivalent

1 See appendix 7
2 Mr McMenemy 11 June pages 108 and 115
3 Mr McMenemy 11 June page 115 (See also Sheriff Crowe 2 July page 132)
4 Now Sheriff Crowe

of seven months[5] and you had to have a proper standard. This was a standard that was not checked by the courts so it was a standard I think we held very high and very dearly as fiscals to achieve that."[6]

4.8. Throughout this period police enquiries may be continuing and they may continue beyond the date of full committal. After full committal the case is also investigated by the local fiscal under direction of Crown Office. The decision fully to commit for trial is not final. The case having been fully investigated by the local fiscal it is again reported to Crown Office and Crown Counsel will decide whether the accused should be indicted for trial.

4.9. The indictment of Mr Asbury is discussed in chapter 8. The principal dates of relevance to this chapter were:

- 22 January 1997: Mr Asbury was detained by the police, arrested and charged;
- 23 January 1997: first appearance on petition;
- 31 January 1997: fully committed for trial.

13 – 17 January

13 January – the discovery of XF

4.10. A number of items that appeared to have been intended as gifts for others were in Miss Ross's home. One gift, which was wrapped and oblong in shape, was on the smallest of a nest of tables behind the door in the main living room.[7] A tear was visible in the gift wrapping and the police considered the wrapped gift as the significant item out of the Christmas gifts found in that room.[8]

4.11. On 13 January, Mr Robert MacNeil[9] and his senior[10] Mr Leslie Gibbens[11] of the Identification Bureau discovered mark XF on the gift tag attached to this wrapped gift.[12] XF was one of a number of marks (XD to XY) that were passed on to the fingerprint bureau that day.[13]

4.12. The record of the police briefing held on 13 January said "175 fingerprints found from the house so far. SCRO working on the prints and some priority system needs to be established for elimination prints submitted to SCRO."[14]

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5 The trial at that time had to commence within 110 days (i.e. 3½ months) but that was equivalent to a seven month jail sentence once remission was taken into account.
6 Sheriff Crowe 2 July page 33
7 So called in Mr Thurley's sketch of the ground floor of the house - DB_0014. This was a different living room to the one where the police officers were over the night of 8 January. On the video, the gift with its tag attached sat parallel to the left side of the table. In the photograph taken by Mr Moffat it sat along the front of the table. Mr Moffat explained that he would have moved the present, after taking the video, to allow for a better photograph - FI_0003 paras 17 - 18 Inquiry Witness Statement of Mr Moffat, ST_0001 - photograph A in Production 14 in *HMA v Asbury*, Mr Moffat 10 June page 144 and Mr Moffat 11 June pages 62, 73, 88-90.
8 Mr McAllister 16 June page 21 and FI_0068 para 81 Inquiry Witness Statement of Mr McAllister
9 Mr MacNeil 11,12 June and FI_0018 Inquiry Witness Statement of Mr MacNeil
10 Mr MacNeil 12 June pages 34, 55
11 Mr Gibbens 12 June and FI_0074 Inquiry Witness Statement of Mr Gibbens
12 PS_0016
13 DB_0003
14 CO_1686

14 January - Mr David Asbury

4.13. On 14 January information came to light as part of an enquiry by Mr Shields about the construction of the extension to Miss Ross's house in 1995.[15] The extension had been built by Asbury Builders, and a grandson of the family, Mr David Asbury, who had worked on it, had left a suicide note and been reported missing. He had gone missing on 13 January.[16] Enquiries were underway to trace him.

Examination of tin in Mr Asbury's home

4.14. Mr Shields and Ms McKie visited his home. Ms McKie said that the suicide note, which had been handed in to the local police station, mentioned that Mr Asbury had left a sum of money in a tin in his bedroom. The officers found the tin in a cupboard in his bedroom and in it they found "approximately £1,700" tied together in bundles of £100. This was the tin on which QI2 was subsequently to be found. They left the tin and contents where they found it. No gloves were worn when the police examined the tin.[17]

4.15. Mr Asbury returned home on Tuesday 14 January.

4.16. The fact that Ms McKie was involved in the examination of the tin at Mr Asbury's home subsequently assumed a possible significance. At its simplest it meant that Ms McKie recognised that her fingerprints would be needed for elimination purposes. There was also room for the possible theory that she might have left her mark on the tin, and that the mark had been transferred from there to Miss Ross's house.

4.17. I did not consider it necessary to investigate planting or transfer of fingerprints. That suggestion had come from Ms McKie at a time when she accepted the reliability of the identification of Y7. By the time of the Inquiry this was no longer a live issue.

15-17 January

4.18. SCRO's work on 15 January included the bundle of marks with XF in it. Conclusions about marks that were insufficient or belonged to Miss Ross were reached and those marks were removed, leaving XF, the mark on the gift tag, as the only outstanding mark in that bundle.[18]

4.19. On 16 January Mr Asbury was interviewed by police and a statement taken from him. At that stage his fingerprints were taken for the purposes of elimination. The Inquiry was unable to trace these elimination prints.

17 January – visit of fingerprint officers to the murder scene

4.20. The Glasgow fingerprint bureau examiners were usually office-bound[19] but occasionally visited a crime scene to look at marks and on Friday 17 January

15 FI_0013 paras 120-124 Inquiry Witness Statement of Mr Heath
16 CO_1422
17 FI_0071 paras 47-53 Inquiry Witness Statement of Ms McKie and CO_2219 Mackay enquiry statement of Ms McKie (which she generally adopted in her Inquiry statement – see FI_0071 paras 6-8)
18 FI_0056 para 67 Inquiry Witness Statement (Supp.) of Mr MacPherson
19 Mr MacPherson 3 November page 121 and FI_0055 para 140 Inquiry Witness Statement of Mr MacPherson

Mr MacPherson and Mr Alister Geddes visited 43 Irvine Road, with Mr Thurley, primarily to view a mark on a chair.[20]

4.21. Mr MacPherson recalled that the visit was before Y7 was identified. He thought that he saw Y7 when he was there because it was an important mark since it had been discovered near where Miss Ross's body had been found,[21] but he would not have had the photographs of Y7 with him and had no recollection of trying to orientate the mark or anything like that.[22] In the days between 16 January and 11 February when he identified Y7 as belonging to Ms McKie, various examiners in the bureau would have been working through the elimination forms. When Mr MacPherson was dealing with the mark, he was looking firstly at left thumb prints. "This would have been because of its position on the door-frame. My knowledge of the locus would have helped me in that analysis."[23]

4.22. Mr Geddes said that the police were excited by the potential of Y7 so it was noted at the time of that visit, though the emphasis was more on the print on the chair.[24] In a written submission to the Scottish Parliament's Justice 1 Committee Inquiry he had said that the visit was illuminating with the mark on the chair being able to be correctly orientated and Y7 being properly assessed as a left thumb. However, in his evidence to the Inquiry he thought that he had been over definite in saying that. During the visit he could see that Y7 was potentially going to be a thumb print but he was not definite in that conclusion and he could not differentiate it as a right or left thumb. Nothing could be ruled out until comparison and analysis and assignment of ownership.[25]

21 - 31 January

XF and Mr Asbury's detention and arrest

4.23. On Tuesday 21 January, SCRO identified XF, the mark on the gift tag found in Miss Ross's house, as that of David Asbury.

4.24. At 14:00 on 21 January Mr Kirkland told Mr Heath of the identification of mark XF as David Asbury's. Mr Heath and Mr McAllister regarded this as an important development.[26] At this point, dating the gift became a focus of the inquiry,[27] and David Asbury was now a "TIE suspect".[28]

4.25. Mr Heath met staff at the procurator fiscal's office, Mr John McLellan and Mr McMenemy, and prepared a report[29] requesting a warrant to search David Asbury's home. The sheriff granted the warrant.[30]

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20 Mr Geddes 26 June pages 96-97 and FI_0055 para 140 Inquiry Witness Statement of Mr MacPherson
21 FI_0055 para 145 Inquiry Witness Statement of Mr MacPherson
22 FI_0055 para 143 Inquiry Witness Statement of Mr MacPherson
23 FI_0055 paras 144, 146 Inquiry Witness Statement of Mr MacPherson
24 Mr Geddes 26 June pages 97-98
25 Mr Geddes 26 June pages 98ff, 140ff and FI_0031 paras 87-91 Inquiry Witness Statement of Mr Geddes
26 FI_0013 para 151 Inquiry Witness Statement of Mr Heath and FI_0068 para 90 Inquiry Witness Statement of Mr McAllister
27 FI_0013 para 156 Inquiry Witness Statement of Mr Heath
28 FI_0013 para 155 Inquiry Witness Statement of Mr Heath - TIE: trace, interview, eliminate
29 CO_1422
30 FI_0013 paras 157-158 Inquiry Witness Statement of Mr Heath

4.26. On Wednesday 22 January Mr Asbury was detained under section 14 of the Criminal Procedure (Scotland) Act 1995 and his home was searched. The tin was recovered, sealed and labelled and taken to Kilmarnock Police Station. It contained £2,240 in notes. He was taken to a police station for interview, at the conclusion of which, on Mr Heath's instructions, he was arrested and charged with murder.[31]

23 January - Mr Asbury's first appearance in court

4.27. The police prepared a report dated 22 January and submitted it to the procurator fiscal at Kilmarnock next day.[32] The police report[33] recorded the evidence that the police then had against him:

> "The gift, which was a boxed set of soap, appeared to have been wrapped for a known relative at Christmas 1996. Although the tag was of a type that had been on sale for Christmas 1995 and 1996, a receipt had been found in Miss Ross's house indicating a purchase of gift tags and wrapping paper on 18 November 1996.[34] At interview Mr Asbury had denied being in the house since the renovation work, hence the presence of his fingerprint on the gift tag was unexplained.
>
> He had delayed for 38 seconds before replying in the negative to the direct question whether or not he murdered Miss Ross.
>
> While his arrest prints were being taken, he had started to make a voluntary statement saying that he had been in the house to use the phone when his car broke down 2 or 3 days before the murder. Mr Heath had arranged for officers previously unconnected with the inquiry to be brought in and his voluntary statement was tape-recorded in their presence.[35] This was to the effect that he had called at the house of the deceased because his car had broken down and he wanted to call his mother. He then said that he had realised that the car had run out of petrol and had therefore not placed the call. The deceased had shown him around the house and he had used the toilet and then left."

4.28. The case report from the police was, at that time, delivered in hard copy to the fiscal's office to be attended to by the fiscal who was doing the custody court that day.[36] Mr McMenemy explained that in Kilmarnock the police office, the sheriff court and the fiscal's office were close to one another making it easy for police to come across to discuss matters and Mr Heath said that it was his normal practice to visit the procurator fiscal at the point when a custody case was delivered.[37]

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31 FI_0013 para 167 Inquiry Witness Statement of Mr Heath
32 FI_0013 para 175 Inquiry Witness Statement of Mr Heath
33 CO_0994
34 Subsequent police enquiries found that the boxed set of soap was of a type not manufactured before 1996 which confirmed that Mr Asbury could not have placed his mark on the tag during the time he worked at the house in 1995. Narrative of Facts in the Precognition for *HMA v Asbury* (CO_3850)
35 FI_0013 para 168 Inquiry Witness Statement of Mr Heath
36 Mr McMenemy 11 June pages 105, 147-148
37 FI_0013 para 157 Inquiry Witness Statement of Mr Heath and Mr Heath 9 June page 34ff

4.29. Mr McMenemy did not recall personally taking up this particular case.[38] However he did recall that his view at that point was that it was a 'circumstantial' case.[39] The term 'circumstantial' is a term of art used to describe a case where there is no direct evidence that the accused committed the crime (such as an eye witness who observed the crime taking place or an admission by the accused) and where the guilt of the accused has to be inferred from a number of different circumstances. The term is not a reflection on the strength or weakness of the case; circumstantial evidence may create a strong case or a weak case against an individual.

4.30. Mr Heath said that during his visit they would have discussed issues in the case. Though he considered that it "was an extremely thorough investigation" and that the police were presenting a sufficiency to the procurator fiscal,[40] it was for the fiscal to take an independent decision about someone's liberty, based on the evidence provided to them.[41]

4.31. Mr Heath's recollection was that Mr McMenemy said to him that it was "a fairly circumstantial case"[42] and Mr McMenemy agreed that it was "quite possible" that he might have said something of the sort.[43] He described Mr Heath as "a very, very experienced police officer. He knew it was a circumstantial case. We did not have an admission."

4.32. On 23 January, Mr Asbury appeared on petition at Kilmarnock sheriff court and was remanded in custody for further examination.

23 January – visit of Mr McAllister and Mr Moffat to the locus

4.33. On 23 January Mr Moffat was instructed to return to the scene with Mr McAllister to go over the positions of certain prints.[44] They had different recollections about the details of this visit.

4.34. Mr Moffat[45] said that he was asked by Mr McAllister to return to the scene and to go over the positions of some of the prints. He had not done that before and on reflection he had concerns as to why he was asked to visit the scene.[46] His recollection was that Mr McAllister wanted to ask him for an opinion on certain marks at the scene, and he was mainly interested in Y7 and Z7 though they also discussed A8. Mr McAllister also asked him about the age of the prints.

4.35. Mr Moffat said that he raised with Mr McAllister the possibility that Mr Gray might have been the donor of Y7 and Z7, because of the incident that had taken place when Miss Ross's body was being removed.[47] His recollection was that Mr McAllister replied that the marks were not those of Mr Gray, but of another police

38 The papers which he would have wished to refer to were not wholly available. Mr McMenemy 11 June pages 106, 118 and 141-147, FI_0135 - Note of his subsequent attendance to examine papers at the Inquiry's offices.
39 Mr McMenemy 11 June page 107
40 Mr Heath 9 June pages 36-37
41 Mr Heath 9 June page 36
42 FI_0013 para 222 Inquiry Witness Statement of Mr Heath
43 Mr McMenemy 11 June page 107
44 Mr Moffat 11 June page 12
45 Mr Moffat 11 June pages 63ff, 79ff and FI_0003 paras 62-66 Inquiry Witness Statement of Mr Moffat
46 Mr Moffat 11 June pages 12-13, 16-17, 87ff and FI_0003 para 64 Inquiry Witness Statement of Mr Moffat
47 See chapter 3 para 31ff

officer. Mr McAllister did not indicate the name, age or sex of the officer.[48] From Mr McAllister's tone, Mr Moffat concluded that he should not attempt to pursue the matter further with him.[49]

4.36. Mr McIntyre worked with Mr Kerr at the scene attending to productions and dealing with any locus specific inquiries from police officers. He had a recollection of Mr McAllister visiting the locus and showing him Y7. By the time of the Inquiry he had no memory beyond that.[50] He was shown the statement that he gave to Chief Inspector Laurence Wilson[51] dated 10 July 1997[52] and said that he believed that statement would be correct.[53] It noted Mr McAllister as having said of Y7 that "it looked like a child or a female, but was not more explicit than that".

4.37. Mr McAllister[54] said that he reviewed the scene on 23 January, which he recalled as the day following the arrest of Mr Asbury. A specialist search team was to be introduced the next day and, as part of a series of actions in advance of that he "felt it prudent to conduct a review … both of the forensic examination by the forensic examiners and also the search of the house by my own staff".[55] In relation to the fingerprints he was seeking an assurance from the Identification Bureau that the strategy agreed between himself and its head, Mr Hogg, had been followed through and "more specifically within that, [I was] seeking information about the small number of outstanding marks which had yet to be identified". Mr Moffat was there to point out the various outstanding marks to him.[56]

4.38. Mr McAllister told the Inquiry that he had no recollection of the specific discussions, but that he probably had a discussion with Mr Moffat about all the outstanding marks "to see what further action we might take to try and achieve identification".[57] He commented that "the role of the police is to try and identify legitimate donors of those marks, obtain elimination forms and submit them to SCRO".[58] Marks around the bathroom area were of particular importance, "but only from a perspective of they were in the vicinity of where Miss Ross's body had lain".[59]

4.39. After this visit Mr McAllister prepared his own aide-memoire[60] about around 18 outstanding marks.[61] In this he noted against Y7 "very interesting position on right door surround – leaning into bathroom? possibly right little finger of palmar Z7?" He noted also "Z7 insufficient".[62] These were his own thoughts or questions to himself at the time and later he marked up answers to some of the questions "presumably

48 Mr Moffat 11 June pages 13-15 and FI_0003 para 63 Inquiry Witness Statement of Mr Moffat
49 Mr Moffat 11 June pages 13-15
50 FI_0041 paras 25-27 Inquiry Witness Statement of Mr McIntyre
51 See chapter 8 para 85
52 CO_1592
53 Mr McIntyre 18 June pages 94–95 and FI_0041 paras 3 and 27 Inquiry Witness Statement of Mr McIntyre
54 Mr McAllister 12 June pages 97ff
55 Mr McAllister 12 June page 97
56 FI_0068 para 71 Inquiry Witness Statement of Mr McAllister
57 Mr McAllister 12 June page 100
58 Mr McAllister 12 June page 122
59 Mr McAllister 10 June page 99
60 CO_1706
61 CO_1706 (and see also AG_0003)
62 Mr McAllister 12 June page 107 and FI_0068 para 75 Inquiry Witness Statement of Mr McAllister

after checking with SCRO around the identification or elimination of marks".[63] There were no further comments against Y7 in his note.

4.40. He did not recall expressing the view that Y7 could be the mark of a woman or a child but accepted that he might have done so. He might have been thinking out loud and speculating whether, because of the size of the mark, it might have been. He had taken fingerprints many times and was aware that "in general terms the impressions taken from females tend to be smaller and neater than impressions from men" but his expertise was no more than that.

4.41. Mr McAllister denied making any comment on 23 January to the effect that the donor of Y7 and Z7 was known at that time to be a police officer. He denied that there had been any discussion about Mr Gray as a possible donor of the mark. He had become aware that this was Mr Moffat's recollection only in the course of the Mackay enquiry. When he became aware of Mr Moffat's position he had prepared a memorandum on the point and submitted it to the head of Strathclyde CID, Mr Malcolm.[64] He had set out his version of events as he thought that the remarks attributed to him could be taken to infer that he might have had some level of prior knowledge of the identification of Y7, and that was not the case.

4.42. Mr Moffat confirmed to the Inquiry his recollection of what occurred on 23 January 1997 even when it was pointed out to him that Y7 was not identified as Ms McKie's until 11 February[65] and that the Mackay report narrated that Mr McAllister disputed his account.[66] He conceded however that since he wrote nothing down he could not disagree with what the Mackay report had concluded namely that there was no evidence to corroborate his account and that the weight of evidence supported Mr McAllister's position that he had no knowledge of the donor of the mark until 11 February.[67]

4.43. Mr Moffat accepted that there was no mention of his suggestion about Mr Gray in his statements to Mr Malcolm and Mr Wilson in 1997 but he explained that at that time the print had been identified as Ms McKie's and there would be no reason to query that.[68] Other than at the start when it was "no big thing",[69] the time when he felt it was appropriate to speak about it was when he first learned that there would be a challenge to the identification of the print and SCRO had possibly made a mistake.[70]

4.44. It was only during the Inquiry hearing on 11 June 2009[71] that Mr Moffat first learned that the Mackay enquiry concluded that Y7 was not the mark of Mr Gray,[72] that finding not having previously been made public.

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63 Mr McAllister 12 June pages 109-110
64 Mr McAllister 12 June pages 101-107, Mr McAllister 16 June pages 13-17, FI_0068 para 73 Inquiry Witness Statement of Mr McAllister and AG_0003 - Memorandum dated 29 August 2000
65 Mr Moffat 11 June pages 65-66
66 Mr Moffat 11 June page 79ff
67 Mr Moffat 11 June page 83
68 Mr Moffat 11 June pages 18–23, 67
69 Mr Moffat 11 June page 68
70 Mr Moffat 11 June pages 78-79
71 Mr Moffat 11 June pages 84-85
72 See chapter 3

4.45. In relation to this matter I prefer the evidence of Mr McAllister. There is no evidence to support the proposition that Y7 or Z7 had been identified by 23 January 1997. SCRO received Ms McKie's prints on 6 February[73] and on 11 February Mr McAllister was informed that Y7 had been attributed to her.[74] There is no reason why Mr McAllister would have made such a comment on 23 January. Mr McAllister's position is also supported by the terms of his own aide-memoire. I do not suggest that Mr Moffat was in any way seeking to mislead me. I accept that he genuinely believed a conversation took place in the terms he described, but I conclude that his recollection is not reliable on this point.

Miss Ross's prints retaken

4.46. Fingerprint and palm impressions had been taken from Miss Ross's body on 10 January.[75] Further impressions were taken on 23 January.[76]

The discovery of marks on the tin and contents, including QD2 and QI2

4.47. On Friday 24 January the tin was examined at the Strathclyde Forensic Science Laboratory,[77] and on Monday 27 January Mr Gibbens and Mr MacNeil at the Identification Bureau examined it for fingerprints.[78] The examination disclosed two prints on the lid (QE2 and QF2) and six others on the outside of the tin.[79] QI2 was one of those found on the outside.[80] They also examined the money and found mark QD2.[81]

The continuing investigation and Crown Counsel

4.48. Mr Heath said that he and his officers were working extremely hard during the period between Mr Asbury's two court appearances and a lot of significant evidence developed that week. The job of a senior investigating officer was a very busy and pressured one and he would have had his people working as hard as they possibly could to pursue the lines of enquiry. In the course of such an investigation it was normal to have many discussions with the fiscal. Part of the job was to get as much work done as they could before the next appearance "because that is our duty to an accused person as well as to the relatives of the victim and the victim".[82]

4.49. The police report[83] had indicated that the police were following a positive line of enquiry regarding the possibility that the money, and perhaps also the tin, had been taken from the deceased. It stated "£2,240 recovered in the bedroom of the accused on 22/1/97 will be examined for blood and the fingerprints of the deceased". The entry for 23 January in the HOLMES event file[84] included the following:

73 ST_0004h
74 See chapter 6 para 49 and chapter 7 para 5
75 DB_0142h
76 DB_0017h
77 CO_2391
78 FI_0018 para 56 Inquiry Witness Statement of Mr MacNeil
79 FI_0018 para 57 Inquiry Witness Statement of Mr MacNeil. See chapter 19
80 PS_0016
81 FI_0018 para 42 Inquiry Witness Statement of Mr MacNeil and PS_0016
82 Mr Heath 9 June pages 37-39
83 CO_0994
84 CO_1686

"The money found in his house with the clothing and footwear to be a priority for examination. Financial profile of Asbury required ASAP. The sweet jar/tin found in house containing money from M&S to be fingerprinted."

4.50. On Monday 27 January Mr Heath submitted a follow-up report to the procurator fiscal.[85] The report touched on the Christmas gift tag and also stated[86] that a significant part of the money found in Mr Asbury's house was folded in a manner associated with bank staff and that Miss Ross was known to fold money in this way. Fingerprint, forensic and handwriting examinations were to take place to endeavour to prove that the money belonged to Miss Ross.

4.51. Mr MacTaggart, a procurator fiscal depute at Kilmarnock, submitted the three day report to Crown Office on 28 January.[87]

29 January – Marks QB2 – QL2

4.52. On 29 January SCRO received the photographs of QI2 and QD2 in a bundle QB2 to QL2,[88] and that day QD2 was identified as the right little finger of David Asbury, and QE2 and QL2 were also identified as belonging to him.

4.53. Mr Heath attended a lab, IB and SCRO liaison meeting that afternoon. The purpose of such a meeting he said was to explain the priorities in the case.[89] His briefing notes for that day[90] referred to elimination of prints and this was critical at this stage.[91] "I was very clear: any TIE people that were still in the system had to be eliminated. Any prints that were still there had to be eliminated if possible and any forensic work that still needed to be done, even if it did not relate to Mr Asbury, still had to be done. I think we still raised in the region of 200 actions not related to Mr Asbury after that arrest."[92]

4.54. Although SCRO had received most fingermarks by 29 January, marks continued to arrive into March 1997.[93]

4.55. SCRO's diary page recorded "2:00pm debrief/police elims prioritised".[94] The identifications of QD2, QE2 and QL2 were intimated to Mr McAllister at the meeting.[95]

4.56. The bundle QB2 to QL2 contained eleven marks, of which three were identified as belonging to Mr Asbury. The evidence about SCRO's standard process[96] would indicate that the first action with a bundle is to isolate marks considered to be fragmentary and insufficient. The marks worksheet[97] shows that seven of the batch were so marked. Although SCRO's records do not give dates for such

85 AC_0045
86 AC_0045 para 8
87 CO_4036
88 DB_0003 and date stamp on form 13B
89 FI_0013 para 210 Inquiry Witness Statement of Mr Heath and CO_1688
90 AC_0050
91 FI_0013 para 214 Inquiry Witness Statement of Mr Heath
92 Mr Heath 9 June pages 53-54
93 DB_0003
94 DB_0002
95 FI_0055 para 103 Inquiry Witness Statement of Mr MacPherson
96 See chapter 22
97 DB_0003

findings, three of the marks had been identified and seven marked fragmentary and insufficient so it would appear that from the afternoon of 29 January, the only outstanding mark of the eleven in this bundle was QI2.

4.57. The three day report was received at Crown Office on 29 January[98] and studied by Mr William Gallacher, a procurator fiscal depute who was then the head of the High Court Unit.[99] He passed it to the duty advocate depute for instructions, appending a note:[100]

> "I have asked PF to clarify what the evidence is of his family re 5-7 Jan. Police say they cannot support the accused – I have asked just what they say. At JE [judicial examination] a/c says in house on 4/1/97 and at home 5-7 Jan. As for money I have asked for explanation as to differences in amounts, whether <u>all</u> the money is folded unusually and for what accused actually says about it."

30 January – instruction for full committal for trial

4.58. On 30 January Mr Heath delivered a manuscript note to Mr MacTaggart in Kilmarnock,[101] with an update on the money, including disclosure of the fact that Mr Nimrod Asbury, the accused's grandfather, was said to fold money in the same manner.[102] The procurator fiscal had contacted him that day and they had a meeting.[103]

4.59. The slip immediately following in the Crown Office file, dated 30 January, was from "RGC AD" (Mr RG Clancy, Advocate Depute) and read: "CC instruct FC murder" [Crown Counsel instruct full committal murder].[104]

4.60. That was the instruction authorising the local procurator fiscal to apply to the court to have Mr Asbury fully committed for trial. An insight into the thinking behind that decision is given by the manuscript note written by Mr Gallacher to Crown Counsel seeking instructions on full committal and dated 30 January:

> "...In essence the evidence is that the accused's fingerprints are found on property in the house which was there after the time when the accused last had legitimate access to the house – His 'explanation' does not cover anything other than the phone.
>
> There is in addition the money recovered, folded in a peculiar way (the figures of £1795 & £2240 appear in police report with no explanation of the difference) his unusual behaviour after the death, the falsehood of some of his interview, and I suppose his earlier involvement & knowledge of the house.
>
> I think it is <u>just</u> sustainable to link the [fingerprint] to the murderer – given the other evidence on security of the house - & the other [circumstances] are <u>probably</u> enough to justify F.C." (i.e. full committal).[105]

98 CO_4036
99 Now a Sheriff
100 CO_4034 (underlining is in the original)
101 AC_0052
102 Miss Ross was believed to have folded bank notes in a particular manner.
103 FI_0013 paras 217-220 Inquiry Witness Statement of Mr Heath
104 CO_4035
105 CO_4036 (underlining is in the original)

4.61. Mr Gallacher communicated the instruction to the procurator fiscal at Kilmarnock by letter dated 30 January,[106] which Mr McMenemy said would have been opened on 31 January.[107]

31 January – Mr Asbury in court, QI2 identified

4.62. Mr Asbury was fully committed for trial in a court appearance before the Sheriff on Friday 31 January 1997.

4.63. On 31 January, the same day as the full committal hearing and the day after Crown Counsel had instructed full committal, QI2, the mark on the tin found in Mr Asbury's house, was identified as being partly Miss Ross's right forefinger, and partly the right middle finger of David Asbury.

Commentary

4.64. When Mr McMenemy made a comment to Mr Heath about the case being circumstantial he was merely making an observation about the nature of the evidence. Mr Heath knew that Mr Asbury's arrest and appearance on petition did not signal the end of the investigation. He understood that he had to continue the investigation because Mr Asbury's, and other public, interests were at stake, and the investigation carried on. It carried on after the second court appearance. It was normal for an investigation to continue right up to trial.

4.65. It is also important to note that there was a procedural safeguard in operation. After the procurator fiscal had decided to place Mr Asbury on petition and bring him before the sheriff, the next decision, whether to seek authorisation from the sheriff to fully commit Mr Asbury for trial was taken by a different person. It was Crown Counsel and not the procurator fiscal who determined whether, on the basis of the information available to him, and to a different and higher standard (namely a corroborated case), there was sufficient evidence to apply to the sheriff to have Mr Asbury fully committed for trial.

4.66. In chapter 5 I look more closely at the circumstances surrounding the identification of QI2 Ross and, in particular, a difference in recollection between Mr McMenemy and Mr Crowe regarding the evidential significance of the identification of that mark. I am satisfied that Crown Counsel made the decision authorising the application to the sheriff to fully commit Mr Asbury for trial on 30 January and without knowing about the identification of QI2 Ross. Accordingly, I am satisfied that the identification of QI2 did not influence the Crown's decision that there was a sufficiency of evidence against Mr Asbury justifying the application to the sheriff to have him fully committed on the charge of murder.

106 CO_4033
107 Mr McMenemy 11 June page 116

CHAPTER 5

SCRO: THE IDENTIFICATION AND VERIFICATION PROCESS XF, QD2 AND QI2

Introduction

5.1. I now turn from the investigation in general to SCRO's identification and verification of the marks of relevance to the Inquiry. It is convenient to discuss Y7 separately from the other marks (XF, the 'Q' marks identified to Mr Asbury and QI2). This chapter will focus on the other marks that were identified before Y7 but, before addressing their work on these marks, it is necessary to begin with two preliminary topics of common relevance to all of the marks. The first relates to the difference between 'identifications' and 'eliminations' which is relevant to the standard that SCRO applied in the comparison process. The second concerns the relationship between the police and SCRO, including the nature of the information made available to SCRO relating to the evidential significance of the marks because there is some academic research suggesting that fingerprint examiners might be influenced by what is referred to as 'contextual bias'.[1]

The standard applied in the comparison process

5.2. SCRO maintained a distinction between an 'identification' and an 'elimination'.[2] Both terms were applied to a conclusion by a fingerprint examiner that there was a unique identity between a mark and the print of a specific individual. The distinction between the two lay in part in (a) the significance of the individual to the police investigation and (b) the standard applied by the fingerprint examiners in comparing the mark. SCRO approached the task of comparing the prints of police suspects as a potential 'identification' requiring proof of identity in accordance with the 16-point standard.[3] By contrast, SCRO spoke of 'eliminating' non-suspicious marks from the police investigation by matching them to individuals believed by the police to have had an innocent reason for being at the scene (such as those of a police officer involved in the investigation). A conclusion of 'elimination' could be arrived at by applying the legal standard of 16 points but it was not necessary to apply that standard in every case and a finding of 'elimination' could be made on a lower number of matching characteristics. A finding of 'elimination' was, accordingly, ambiguous and could signify a conclusion of individualisation to either (a) the legal standard of 16 points or (b) a lesser number of matching characteristics.

5.3. At the time of the murder investigation the finding that Y7 was the mark of Ms McKie, a police officer involved in the investigation, fell into the category of an 'elimination'. As will be seen, the SCRO officers who first identified it approached it as an 'identification' to the 16-point standard[4] but those who were involved in cross-checking that finding approached it as an 'elimination' that could be established

1 See chapters 28 and 35
2 See chapter 22 paras 6-8 and chapter 32 para 33ff
3 The 16-point standard is considered in chapter 32.
4 See chapter 6

on a lesser number of points in agreement[5] but the inconsistency in the standards applied by the two groups was not picked up at the time.[6]

5.4. This issue has relevance to QI2 Ross but from a different perspective. The fact that Miss Ross was the victim of the crime meant that her prints ordinarily fell into the category of an 'elimination'. The marks on the tin (including QI2) were an exception because the tin was found in Mr Asbury's house and therefore the presence of Miss Ross's prints on the tin was potentially an incriminating piece of evidence requiring proof to the full court standard of 16 points. In the case of QI2 the first question is what standard SCRO applied when comparing it and the second question is the extent to which information made available by the police about the significance of the tin to the investigation may have influenced the comparison of that mark by SCRO.

5.5. Mr Stewart's evidence was that in a 'special case' (i.e. a case involving a more serious crime such as murder or rape, as opposed to 'volume crime') it was down to the fingerprint officer in charge of the case to decide the standard to be applied to 'eliminations'.[7]

5.6. The person in charge was Mr MacPherson. He said that he could have eliminated to less than 16 points but he applied the 16-point standard to all of the marks. This was a "whodunit" murder, where he was not the final arbiter of who was to be eliminated and who was to be treated as a suspect and where the status of an individual might change over time. To be efficient and effective, he identified to 16 points. As for other examiners, he said that it might have started off that people were eliminating on less than 16 points but once XF was identified it became 16 for all.[8] He would have probably told them individually.[9] Also, since the number of checkers for an elimination and an identification differed (two for the former and four for the latter in 1997), an examiner asked to be checker three or four would have known it was an identification they were to do.[10]

5.7. Ms McBride said she was informed that it was a "whodunit" and that it was necessary to check the marks to 16 points.[11] She did not think there was anything abnormal about being asked to sign up to four signatures for an elimination when that was required.

5.8. Mr Stewart agreed "from memory" that it was 16 for all marks in the case. He had no specific recollection as to how that came about but Mr MacPherson would have taken the decision and told those doing verifications that was the way he was working the case.[12]

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5 See chapter 7
6 See chapter 28
7 Mr Stewart 5 November page 28ff
8 Mr MacPherson 27 October page 24ff and 3 November page 62
9 Mr MacPherson 27 October page 27
10 Mr Stewart 5 November page 187, Mr Bruce 10 July page 59 and Mr MacPherson 27 October page 32
11 Ms McBride 6 November pages 81–82
12 Mr Stewart 5 November pages 30-31

5.9. Mr McKenna said that it was not normal to ask four examiners to agree an elimination. In the past this was done for suspect eliminations or in the case of an 'internal enquiry'.[13]

5.10. Mr Padden confirmed that if a fourth checker was involved that examiner would be working to the 16-point standard.[14]

5.11. When it was put to Mr Geddes that Mr MacPherson had said to the Justice 1 Committee that all the marks that were identified in the case were identified to 16 points, he said he would be surprised by that.[15] That said, he was effectively passed over when he could only 'eliminate' Ms McKie as the source of Y7 because he could not find 16 points in sequence and agreement.[16]

5.12. However, as noted later in this chapter, there was a conflict of evidence between Mr MacPherson and Mr Edward Bruce, another SCRO examiner, regarding the standard applied by the latter when he worked with QI2 Ross.

Information available to SCRO

5.13. SCRO indicated that information they received helped them prioritise their work.[17] Papers in the case envelope for the Marion Ross investigation gave rise to a question about the information they received.

Information sharing generally – the police perspective

5.14. Mr McAllister, the liaison between the investigation team and SCRO,[18] said that in a domestic break-in case (i.e. a case that SCRO would classify as 'volume crime') the police would not be in communication with the SCRO fingerprint section. In a case of this nature where there were in excess of 400 marks "we were very conscious that we were asking a lot of SCRO" and there was frequent contact, in debriefs and by telephone. The sheer volume of marks meant that there was a need to try to narrow the focus.[19] He did not set any particular policy criteria by which a given mark might be prioritised, but he would have indicated to SCRO which marks he would like eliminated as a priority. He believed, for example, that he would have asked for priority to be given to the identification of individuals who had been at the scene in order to eliminate them from police enquiries,[20] and sometimes specific priorities were given such as having marks on the money checked against Mr Asbury's associates.[21]

5.15. More generally, in an investigation of this sort "we work as a team, the reality is that these sorts of crimes are solved by teamwork and in a wide sense everybody working on that is viewed as part of the team. Unless there is good reason not to give some specific information (such as sensitive intelligence) then the practice would be to share as much information as possible, to motivate individuals who

13 FI_0054 para 38 Inquiry Witness Statement of Mr McKenna
14 Mr Padden 23 June page 138
15 Mr Geddes 26 June page 124
16 See chapter 6
17 See also chapter 22
18 See chapter 3
19 Mr McAllister 12 June page 126
20 FI_0068 paras 95-96 Inquiry Witness Statement of Mr McAllister
21 Mr McAllister 12 June page 123

were all giving or being asked to give more than they would normally and hopefully so that we get the maximum results from all the enquiries that were ongoing."[22] Under Mr Heath's direction the police were very much into teamwork and sharing fairly significant amounts of information. Mr McAllister said that at the time of the investigation this was even more the case.[23]

5.16. Mr Heath said "It is a simple fact that in terms of focus and examination and the direction of the investigation sometimes you have a list of eliminations…for example [in the case of this investigation] it was a natural thing to try and trace the people who fitted the bathroom, and send the elimination prints from the fitters to SCRO to be examined against those prints…So sometimes in a line of enquiry I do not think that there is anything untoward in terms of trying to focus examinations …as long as you are not focusing too far. There are various demands on SCRO and on the Identification Bureau where they have to focus their work in that way because they are juggling other investigations and other enquiries. It was not just the Marion Ross investigation at that time."[24]

Information sharing generally – the SCRO perspective

5.17. The fingerprint bureau received a daily "incidents of note" form from the police incidents room. These reports of serious crimes would be circulated in the SCRO office and assisted in the planning of resources.[25] On a particular case, Mr Geddes said that the liaison officer from the investigating team might phone in to SCRO. If it was a big case the productions officer would be coming in and out of the office with elimination print forms, and information might come on a form 13 to prioritise a particular batch of marks.[26]

5.18. Mr Stewart also said that information was relayed in various ways. For example the senior investigating officer (SIO) might say he wanted SCRO to focus on particular marks or a certain elimination or a certain suspect. SCRO talked to the SIO on a regular basis for information on priorities, so that they could structure their work rather than just starting at the beginning and going through it. Different SIOs gave different amounts of information. It might vary depending on the relationship built up over the years between the particular examiner and the SIO with more information being disseminated if the two were familiar with each other but a new SIO was always more guarded.[27] Mr Stewart had worked on a number of inquiries with Mr Heath and knew Mr McAllister.[28] The contact could be daily, or several times a day, depending on the particular case. "Certainly you would have to have contact to make sure you were doing the right things. You would be contacting them to disseminate information back…about people that had been identified, you would have asked questions over a period of time."[29]

5.19. Care was taken in passing on information within SCRO. The examiner in charge would only tell his team what they needed to know. "That way the potential for

22 Mr McAllister 12 June pages 121-122
23 Mr McAllister pages 129-130
24 Mr Heath 9 June pages 47-48
25 FI_0015 para 33 Inquiry Witness Statement of Mr Bruce and FI_0054 para 90 Inquiry Witness Statement of Mr McKenna
26 Mr Geddes 26 June pages 76, 79–80
27 Mr Stewart 5 November page 52ff
28 Mr Stewart 5 November pages 55-56,164-165
29 Mr Stewart 5 November page 163

information to be leaked was minimised."[30] Of all the documents in the case envelopes in the Marion Ross case, the only ones he would have seen at the time were those that he had written himself.[31]

5.20. Mr MacPherson did not recall there being daily briefings in this investigation, but he did phone Mr McAllister, the liaison person, with identifications etc or if he could not get him then he contacted the incident room.[32]

SCRO's notes in this case

5.21. There were a number of papers inside the case envelopes including handwritten notes, and press cuttings which Mr MacPherson had collected about the murder investigation.[33]

5.22. The bureau dealt with so many cases it could be difficult to remember the details of each specific case, but it was not Mr Stewart's practice to keep press clippings, nor Ms McBride's.[34] Mr McKenna did not keep press clippings with case papers either, but said some experts did. Mr Geddes said that whether press cuttings were kept depended on the individual working on the case; it was not unknown for a suspect notification to be obtained from the press,[35] and Mr Bruce said that clippings would be kept for example in murder cases.[36]

5.23. A scribbled note in the case envelope included information such as the names of Mr Heath, Mr McAllister and Mr Kirkland and "case being dealt with by team 4 HM, AG, JO" (Mr MacPherson, Mr Geddes, Mr Orr),[37] followed by a note by Mr MacPherson with detailed information about the case from a "de-brief" on 13 January 1997. The note of the debrief included an entry indicating "exhaustive elims to come – will be phoned to prioritise comps" and appeared to indicate that Mr Thurley "would liaise re elims where to compare"[38] though Mr Thurley had no recollection of such an involvement.[39]

Information about the gift

5.24. The mark on the gift tag (XF) was one of a number that arrived in SCRO on 13 January and it was identified as Mr Asbury's on 21 January.[40]

5.25. A piece of paper[41] within the SCRO case envelope vii[42] had many scribbled notes including one that read "Apparently current Xmas present??"[43] Mr MacPherson said he noted such information because it helped him build up a picture to prioritise

30 FI_0036 para 74 Inquiry Witness Statement of Mr Stewart
31 FI_0036 para 225 Inquiry Witness Statement of Mr Stewart
32 Mr MacPherson 3 November page 122
33 FI_0056 para 129 Inquiry Witness Statement (Supp.) of Mr MacPherson
34 FI_0036 para 206 Inquiry Witness Statement of Mr Stewart, FI_0040 para 52 Inquiry Witness Statement (Supp.) of Ms McBride and FI_0047 para 3 Inquiry Witness Statement (Supp.) of Mr Mackenzie
35 FI_0032 paras 3-5 Inquiry Witness Statement (Supp.) of Mr Geddes
36 FI_0015 para 26 Inquiry Witness Statement of Mr Bruce
37 DB_0264 pdf page 1
38 DB_0264 pdf page 3
39 Mr Thurley 10 June pages 41-43
40 See chapter 4
41 DB_0265
42 DB_0253
43 The Christmas gift was from Miss Ross's house, and XF was found on the gift tag attached to it - see chapter 4.

his work.[44] A second note referring to the date of purchase of the gift tag is referred to below.

Information about the tin and banknotes

5.26. The tin containing banknotes was recovered from Mr Asbury's home on 22 January[45] and at some stage SCRO were made aware that these were of particular interest to the police. Mr Heath did not doubt that SCRO would have been told that the police regarded the tin and money as significant and been asked to direct their resources towards examination of marks on these items.[46] If there was someone in custody who was going to be reappearing in court and the police had seized an item which might have items in it that could possibly connect back to the murder scene then he saw it as the duty of the police to make sure that that line of enquiry was pursued in a focussed way within the period of time prior to his reappearance in court.[47]

5.27. There were three particular notes concerning the tin and its contents. Two were notes from one SCRO examiner passing on information that had come in to another. The third was on a form 13B that accompanied the relevant series of marks when it arrived in SCRO from the Identification Bureau.

SCRO note mentioning the tin

5.28. In the SCRO case envelope vii was an undated handwritten note written by Mr Stewart which read: "Gift tag bought 18/11/96. They are hopeful about the tin the money was in. There is an area the same size as the tin on her bedside table, clearly seen with dust round it. Tin recovered at accused's." [48]

5.29. Mr Stewart explained that in this investigation, as Mr MacPherson was the point of contact with the police, he would only have been involved if Mr MacPherson was out and he was the senior person present. They worked different shifts. He did not recall writing the note but he would have recorded the information and passed the note to Mr MacPherson when he was next in the office. SCRO did not understand how the tin fitted into the investigation until he took this message but from it he knew that the marks on the tin were of interest to the investigating team. He did not remember any discussions along the lines 'QI2 is really important in the case against Mr Asbury'. SIOs would not normally discuss it like that. He doubted if anybody would have said the marks on the tin would be of critical importance or dire importance. Sometimes what was critical was obvious, for example if there was a mark in blood, but, "a lot of the time you are not aware how critical the marks are. You can identify x number of marks and the one we think is important - by the time it gets to trial the Crown is actually much more interested in something else…"[49]

5.30. Mr MacPherson accepted that he must have read the note at the time but he had no recollection of it.[50]

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44 FI_0056 paras 62 and 154 Inquiry Witness Statement (Supp.) of Mr MacPherson
45 See chapter 4
46 Mr Heath 9 June pages 50-52 and FI_0013 para 224 Inquiry Witness Statement of Mr Heath
47 Mr Heath 9 June page 48
48 DB_0256
49 Mr Stewart 5 November pages 53-54,159-166
50 FI_0056 paras 60, 147 Inquiry Witness Statement (Supp.) of Mr MacPherson

5.31. Mr McAllister did not recall passing this information to SCRO but it was the sort of information that would be mentioned at debriefs or contact meetings. It would have been shared with SCRO as they were part of the team and to highlight the potential importance of the marks. The amount of information given to SCRO was a matter for the discretion of the SIO and there were variations between officers in that regard. "The benefit of communicating this type of information was, on a fundamental level of motivation and team working, making every department, including backroom staff, involved with the case as part of the investigating team."[51] Clearly it was contextual information that the Identification Bureau would not actually need in order to examine the tin and recover any marks to forward to SCRO for elimination. He could see that the information in the note appeared to emphasise the potential importance of any marks that were recoverable from the tin itself. But it seemed to him just an example of the kind of information-sharing that was encouraged.[52]

5.32. Mr Heath thought that the reference to "hope" might be viewed as inappropriate. This was for two reasons. First there was no particular need to disclose this level of detail to SCRO. The risk of leaks to the press increased whenever knowledge was disclosed and that could put the investigation at risk. Information should be protected. Secondly the role of the bureau was to provide an impartial service. It should not be subject to any form of influence, and a remark such as "hopeful" could be so regarded. That said, he encouraged those working on investigations to be keen and involved in their work and it could simply be over enthusiasm. The divulging of such a message would not be particularly serious.[53]

The shape in the dust

5.33. The 'shape in dust' was mentioned in the HOLMES file for 26 January: "subject report to PF – re parade + money + shape in dust developments if applicable".[54]

5.34. Mr McAllister had no recollection of a tin shaped dust mark at the murder scene[55] but on being shown the note[56] recalled that someone had thought there had been a dust mark in Miss Ross's house that might have fitted the shape of the tin, "but it was no more than a thought".[57] There was a discussion but he had no recollection of how the "dust mark theory" progressed. The HOLMES entry was he said for inclusion in Mr Heath's supplementary report to the fiscal.[58]

5.35. Mr Heath had no recollection of anything to do with shapes in dust. He viewed it as a matter of significance and told the Inquiry that he found it unusual that he was not informed of it at the time.[59]

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51 FI_0068 paras 81-82 Inquiry Witness Statement of Mr McAllister
52 Mr McAllister 12 June pages 128-129
53 FI_0013 para 198 Inquiry Witness Statement of Mr Heath
54 CO_1688
55 FI_0068 para 57 Inquiry Witness Statement of Mr McAllister
56 DB_0256
57 FI_0068 para 82 Inquiry Witness Statement of Mr McAllister
58 FI_0068 para 82 Inquiry Witness Statement of Mr McAllister. The dust mark is not however mentioned in that report, AC_0045, dated 27 January or in Mr Heath's handwritten note for the fiscal dated 30 January AC_0052.
59 FI_0013 paras 196-197 Inquiry Witness Statement of Mr Heath

5.36. When Mr Leslie Brown, a retired police officer,[60] was undertaking his investigation into the case, he received information about a dust free shape on a shelf in Miss Ross's house identical to the shape of the tin found in Mr Asbury's room. He regarded this as crucial evidence and tried to identify the source of the information. He said he discovered that Mr Stewart "who attended the scene at the material time" had "the answer" and there was apparently a note in the case papers describing the "tin impression".[61]

5.37. Mr Stewart was not at the locus at any time.[62]

5.38. Mr Kerr, the police officer who coordinated work at the scene, thought that the dust impression was noticed two or three days into the investigation when the team were trying to establish if anything was missing from the house. The dust shape was fully investigated and they tried to work out what item might have come from there. If there was a question of the shape being of a particular tin he would ordinarily have expected someone to check that the tin fitted the dust. His recollection was that the shape in the dust was on the bedside cabinet.[63]

5.39. Mr Moffat, the scene of crime officer who took the initial photographs and video at the crime scene,[64] could not recall having seen a shape in dust or thinking that something had been removed. He thought that if it had been at all obvious it would have been pointed out to him to video and photograph.[65] While giving oral evidence to the Inquiry he was shown a still of the video[66] and was able to see gaps in the dust. He was not sure if this was dust or a stain but if it was dust he agreed that it appeared that an item or items had been removed.[67]

SCRO note mentioning the money

5.40. In SCRO case envelope vii was another note written by Mr Stewart to Mr MacPherson[68] which read: "DI McAllister was in on Saturday. He did not know about other mark eliminated. He is getting elims for the two plumbers who installed the shower etc. Told him marks (if any) from money not with us yet. Sunday Stevie Heath brought in Accs TP No 3.30.1 and elims."

5.41. Mr MacPherson said it was normal to send notes like this,[69] and Mr Stewart said that "Stevie Heath" was how Mr Heath was known.[70]

5.42. The Saturday and Sunday would have been 25 and 26 January and Mr Heath confirmed that Mr McAllister had been to SCRO on the Saturday, and that he had been to SCRO on the Sunday with Mr Asbury's arrest prints and some elimination prints. He could see that in hindsight someone could think it unusual for the SIO to do a routine task like this, but his team had been stretched with the demands

60 See chapter 14
61 FI_0017 para 55 Inquiry Witness Statement of Mr Brown
62 Mr Stewart 5 November page 161
63 Mr Kerr 18 June pages 48-49, 75-76, 79-80
64 See chapter 3
65 He took a video and photographs of the crime scene on 8 January.
66 At 22:47
67 Mr Moffat 10 June pages 145–146 and Mr Moffat 11 June pages 76–77, 90–92
68 DB_0258
69 FI_0056 paras 149-150 Inquiry Witness Statement (Supp.) of Mr MacPherson
70 Mr Stewart 5 November pages 164-165

of the investigation and sometimes as a senior manager you helped out. Mr McAllister had asked him to take the prints to SCRO in Glasgow, it was important that they were there before the Monday, and he did it. He had not been to SCRO much before, and did not really know the individuals there. However this murder investigation was unusual, it was particularly focussed on fingerprints, and so the police were linking closely with SCRO, whereas in other cases such links might be with ballistics or the chemistry side of the investigation. The main link was with Mr McAllister so he did not have a lot of close work with the SCRO people. He could understand people thinking that the use of "Stevie" in the note might suggest a familiar relationship, but its use indicated "how little they knew me" because Stephen was what he was called. "To me that is a harmless note."[71]

IB note to SCRO about the marks on the money and tin

5.43. The form 13B for the series of marks QB2 – QL2, which was stamped as arriving in SCRO on 29 January,[72] had an asterisked note written on it: *"*Ident required for deceased." None of the other forms 13B[73] for the case had such an entry.

5.44. Mr Stewart and Mr MacPherson said that this form was filed when the marks were booked in and used later for dates etc when the end of case letter was being compiled.[74] Mr Stewart said that it would have gone to the person running the case from SCRO's point of view, in this case Mr MacPherson, and that person would be aware of its contents but most people on the case would not have seen the paperwork.

5.45. Mr MacPherson was not sure whether he would have seen the form. On being shown it for the purposes of the Inquiry, he took the entry to mean that SCRO was to compare these marks against the deceased.[75] Routinely people were mentioned on form 13B for comparison. It was absurd to suggest that this meant that an identification would automatically follow; it could not be taken to be an instruction as the marks could be fragmentary and insufficient.[76]

5.46. Mr Stewart thought that the entry indicated that the Identification Bureau had information that the SIO considered these marks of interest, and it meant that the mark should be compared against the deceased first of all. "If you could identify it as the deceased's the SIO would be very interested in it." But, even if someone gave it as an instruction SCRO could not identify what was not identifiable. All the marks might be insufficient or they might be negative when compared against the deceased. Nor was it a valid interpretation that it was an instruction to do a comparison to 16 points as SCRO's standards would not be known outside SCRO such as in the Identification Bureau.[77]

5.47. Ms McBride thought that it meant that the deceased was to be the first to be compared[78] as did Mr Geddes. Mr Geddes conceded that the wording could

71 Mr Heath 9 June page 43
72 One of the series in DB_0251 (pdf page 33)
73 Collated as DB_0251
74 Mr Stewart 5 November page 50 and Mr MacPherson 27 October page 72ff
75 Mr MacPherson 27 October pages 74-76
76 FI_0056 para 50 Inquiry Witness Statement (Supp.) of Mr MacPherson
77 Mr Stewart 5 November pages 51-52
78 FI_0040 paras 13-15 Inquiry Witness Statement (Supp.) of Ms McBride

have “sinister connotations” attached to it[79] and Mr McKenna thought it was “unprofessional” and open to misinterpretation, but that SCRO experts were a hard group to pressurise.[80]

5.48. Mr Heath was shown the form at the Inquiry hearing. While emphasising that it was not his note and there might be a number of interpretations of it, he did not regard it as professional because it was “far too specific.” He was asked if he issued any instruction that an identification was required for the deceased in relation to QI2 and replied “Absolutely not.”[81]

5.49. Mr MacNeil, who with Mr Gibbens had found the marks on the tin and banknotes,[82] confirmed that he had written this entry. He explained that it was the type of expression that would be used where a SOCO had some knowledge of the potential significance of the production to the criminal investigation and wanted to ensure that it was not overlooked. At the time he had been made aware[83] that the tin had come from a suspect’s house and that there was a possibility that the tin had been taken from the deceased’s house. These forms were designed simply for suspects and accused. They were “not designed to be matched up for deceased’s prints and things like that so you have got to put in just whatever you feel for a comparison to be made.” In those days “and probably even still now, we refer to comparisons as ‘idents’ more than, as they are, comparisons. We just work on the word ‘ident’ all the time. So I was wanting SCRO to be aware to check against Marion Ross and that is all it was.” In hindsight he conceded that he could have written “please compare with deceased” but “in those days that is how we phrased things”, and there was no hidden agenda behind the entry.[84]

Identification and verification

5.50. The following part of this chapter considers SCRO’s work with XF, QD2 and QI2, up to the point when the results for these marks were phoned out of the office. The case envelope for the case was completed after this and productions were prepared for court. These are considered in later chapters. It is appropriate to note here that the main case envelope, the one which had fields completed and which referred to XF, QD2, QI2 as well as Y7 and other marks, showed “ident by Hugh MacPherson” “comparator – see photographs” and “checked by Charles Stewart, Alister Geddes, Anthony McKenna, Fiona McBride”.[85] As the evidence that follows shows, the examiners who signed a case envelope could be different from those whose names were noted in connection with the original identification and verification of a mark.

79 Mr Geddes 26 June pages 80-81
80 FI_0054 paras 54–55 Inquiry Witness Statement of Mr McKenna
81 Mr Heath 9 June page 51
82 See chapter 4 para 47
83 He could not now recollect how he came to know - FI_0018 paras 54–55 Inquiry Witness Statement of Mr MacNeil.
84 Mr MacNeil 12 June page 1ff
85 DB_0529

The identification and verification of XF

The record written on the photograph

5.51. The front of the photograph of XF used by SCRO[86] was annotated by hand showing initials HM, AG, AMcK (Mr MacPherson, Mr Geddes, Mr McKenna) and a further initial. Above the initials the word 'SCREEN' was written. A note in black ink that the mark was eliminated as that of David Asbury was crossed out and it was noted, in red ink, that David Asbury was identified. That was because Mr Asbury was at first someone to be eliminated as a workman who had a legitimate reason to be in the house, later he became a suspect, then an accused.[87]

5.52. On the back of the photograph Mr MacPherson[88] had written: "21\01\97 D\C KIRKLAND informed of ident. Info being passed on to D\I McAllister. Imp overleaf checked against arrest[89] form. OK. REVERSAL REQUESTED FROM IB."

5.53. Mr MacPherson said that it was his practice to write on the photograph when the print was identified.[90] He would have compared XF initially against the Asbury elimination print form, had it checked by other experts and then phoned out the result.[91] The stickers on the photograph indicated that XF was searched on AFR.[92]

5.54. The word 'screen' indicated that the comparator had been used.[93] Mr Geddes said it might mean that he had looked at the image only on the comparator but "the important thing to remember is that I would only initial or sign it if I was fully satisfied with identification".[94]

5.55. Mr McKenna was not one of Mr MacPherson's team but was called in, he could not recall by whom. He said that an elimination comparison was always done in black and identification was always done in red.[95] His was the third set of initials. "That would mean it was now going to be an identification so therefore I would be looking for 16."[96] 'Screen' meant that at some point he would have looked at it on the screen but he might have used glasses also. He did not have a recollection of looking at this particular mark.[97] He was asked if it was possible that all that one was doing at this stage was checking what appeared on the comparator from an earlier examination by a colleague but he said no, you would do your own examination.[98]

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86 CO_1987h
87 Mr Padden 23 June pages 62–63 and Mr MacPherson 27 October pages 25–26
88 FI_0055 para 93 Inquiry Witness Statement of Mr MacPherson, FI_0056 para 64 Inquiry Witness Statement (Supp.) of Mr MacPherson and Mr Padden 23 June page 24
89 This word might be "current."
90 Mr MacPherson 27 October pages 30-31
91 FI_0055 para 89 Inquiry Witness Statement of Mr MacPherson
92 FI_0055 para 94 Inquiry Witness Statement of Mr MacPherson
93 FI_0031 para 76 Inquiry Witness Statement of Mr Geddes and FI_0056 para 109 Inquiry Witness Statement (Supp.) of Mr MacPherson
94 Mr Geddes 26 June pages 63-64
95 Mr McKenna 6 November pages 15-17, 24. It was not clear whether there was significance to the colour. Mr Padden for example did not attach any significance to the use of colour - Mr Padden 23 June page 63
96 Mr McKenna 6 November page 17
97 Mr McKenna 6 November page 19
98 Mr McKenna 6 November page 20

5.56. The reference to the impression "overleaf" being "checked" indicated that the identification had been re-checked against Mr Asbury's prints taken on his arrest the following day, 22 January.[99] Mr MacPherson said that at this stage he would probably have checked the original elimination form against the new charge form to satisfy himself that it was accurate and related to the same person, and he would probably also have checked that the current form was competent i.e. that he could still get 16 points. If he could not due to the quality of the impression on the form he would ask for a further set of prints to be taken to avoid having to ask for new prints when preparing the productions for court. He usually did such double checks as a matter of course.[100]

5.57. Mr McKenna indicated that reversal would have been ordered to have the mark in correct colour sequence.[101] Mr Padden explained that image reversal was used both for presentational purposes (for court) and for re-checking,[102] and Mr MacPherson agreed, sometimes it was needed for a comparison, sometimes only for court purposes. He was not sure why image reversal was requested in this instance.[103]

The marks worksheet

5.58. On the marks worksheet[104] an entry recording in black ink that the mark was eliminated as David Asbury's was overwritten in red to show that it was identified as his. Mr MacPherson said it had not been a two stage process. Albeit that it was initially eliminated, it would have been eliminated to the 16-point standard.[105]

The fourth checker

5.59. Mr Padden had no recollection of dealing with mark XF.[106] However, on being shown the annotated photograph, he was "pretty sure" the last initials were his.[107] This would signify that he had been the fourth checker of the mark. The practice in 1997 was for officer A to pass to officer B the image and the ten-print form, to have officer B check an identification.[108] The first person would have marked on the photograph the arrow and the number 2 to signify the right forefinger.[109] It was also the practice to ask officers to look at marks on comparators.[110] The proper practice was for the screen to have been wiped clean, but sometimes that did not happen, an example being when he took part in the "blind test" about Y7.[111] It was possible that he would have looked at XF only on the comparator.[112] The comparator was used as a means to record the staff that had seen or carried out an examination and come to the conclusion it was an identification.[113]

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99 Mr Padden 23 June pages 26-27
100 FI_0055 paras 90-92 Inquiry Witness Statement of Mr MacPherson
101 FI_0054 para 66 Inquiry Witness Statement of Mr McKenna
102 Mr Padden 23 June page 30, and see chapter 19
103 FI_0055 para 95 Inquiry Witness Statement of Mr MacPherson. The reversed image is at CO_1989h.
104 DB_0003
105 Mr MacPherson 27 October page 26
106 Mr Padden 23 June pages 27 and 71
107 Mr Padden 23 June pages 20–21 and 133 and FI_0008 para 3 Inquiry Witness Statement of Mr Padden
108 Mr Padden 23 June pages 77-78
109 Mr Padden 23 June pages 77-78
110 See also, for example, Mr MacPherson 27 October page 67
111 Mr Padden 23 June pages 79-80
112 Mr Padden 23 June pages 21–24, 75ff
113 Mr Padden 23 June page 76

5.60. Mr Padden's recollection was that, at the time, if one was the fourth checker one would be looking for 16 points, the court standard.[114] It was normal in an elimination for the work to be by two officers, so if four were involved it would be a suspect.

The identification and verification of QD2

5.61. The Inquiry had a photographic original of QD2 but not the photograph with SCRO annotations. A copy of the annotated photograph could be seen attached to a report for the Scottish Executive prepared by Michael Pass in connection with Ms McKie's civil proceedings.[115] This image of QD2 had manuscript annotations in red, including the digit, the date (29/01/97) and four sets of initials.[116] Although Mr MacPherson was not sure about the third set of initials,[117] the consensus was that the initials were those of Mr MacPherson, Mr Geddes, Mr Orr and Ms McBride.[118]

5.62. A manuscript note by Mr MacPherson[119] apparently from the reverse of this image[120] recorded that the identifications of QD2, QE2 and QL2 were reported to Mr McAllister on 29 January "in person at debrief". This was a meeting at which Mr Heath said, among other things, that any remaining marks had to be eliminated if possible.[121]

5.63. The entry in red on the marks worksheet[122] was completed by Mr MacPherson.[123]

5.64. In contrast to what was to be seen on the image of XF[124] and in the entry in the marks worksheet for it,[125] where black entries were changed to red, there was no indication on the paperwork that QD2 was an elimination process which became an identification process. This is perhaps not surprising as SCRO were aware that Mr Asbury had been arrested and charged with the murder, and form 13Bs received in SCRO from 27 January on listed him as a suspect with one form from this date stating, with asterisks, "accused".[126]

The identification and verification of QI2

The record written on the photograph and the marks worksheet

5.65. The photograph of QI2 used by SCRO[127] was annotated by hand on the front to show the donors of the mark, David Asbury and the deceased, and the digits

114 Mr Padden 19 June pages 137-138
115 SG_0690
116 SG_0691
117 FI_0056 para 102 Inquiry Witness Statement (Supp.) of Mr MacPherson
118 FI_0054 para 67 Inquiry Witness Statement of Mr McKenna, FI_0031 para 81 Inquiry Witness Statement of Mr Geddes and FI_0039 para 113 Inquiry Witness Statement of Ms McBride
119 FI_0055 para 103 Inquiry Witness Statement of Mr MacPherson
120 SG_0692 and SG_0359h
121 See chapter 4
122 DB_0003
123 FI_0055 para 101 Inquiry Witness Statement of Mr MacPherson
124 CO_1987h
125 DB_0003
126 DB_0003. DB_0266 is a note telling Mr MacPherson that Mr McAllister had called with this information. (SCRO received the marks from the tin and contents on 29 January. Mr Asbury had made his first court appearance on 23 January, the previous Thursday.)
127 DB_0001h

with arrows to denote their direction.[128] On the reverse was a note written by Mr MacPherson.[129] It recorded: "Deceased's on screen 31/01/97 HMcP/CS/AG/EB Accused's on screen 31/01/97 HMcP/AG/EB/CS." These were in red ink (now faded). It went on, in black ink, "D\IMCDonald informed 31/01/97 12.25 of above idents. Info to be passed on to D\I McAllister."

5.66. The initials were those of Mr MacPherson, Mr Geddes, Mr Stewart and Mr Bruce and Mr MacPherson said he would have taken them from the comparator.[130] The rest of the note recorded a telephone call he made.[131]

5.67. Mr MacPherson thought that the initials on the photograph would be in the order in which the examiners saw the mark, Mr Stewart thought they might or might not be, and Mr Geddes thought they would be, assuming that Mr MacPherson wrote them in the same sequence.[132]

5.68. The entry on the marks worksheet[133] was "QI2 (part of) ident'd No.2 of deceased" and "QI2 (part of) ident'd No.3 David Asbury" (both in red ink). As with QD2 there was no change from black to red. Mr MacPherson did not think there was any valid reason not to use the phrase "identified as deceased" although other marks attributed to Miss Ross were shown as "eliminated as the deceased". It was an important identification of a mark as the tin was found in Mr Asbury's house, not an identification like those from her own house.[134]

The process

Mr MacPherson

5.69. Mr MacPherson was the first to examine QI2.[135] He would have used fingerprint glasses for his initial comparison and then gone to the comparator.[136] He thought he would have used the first set of prints for Miss Ross.[137] As he did not tend to keep working notes there was no permanent record of the specific characteristics that he used in forming his opinion.[138]

5.70. It looked to Mr MacPherson as if the next person to view QI2 was Mr Stewart in relation to the deceased's mark and Mr Geddes in relation to Mr Asbury's, and he thought they must have done so at different times on the same day. He did not recall what he told Mr Geddes or Mr Stewart about either mark.[139] He would have marked it on the comparator, but he would not have seen what the other examiners did with the mark.[140]

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128 FI_0031 para 51 Inquiry Witness Statement of Mr Geddes
129 Mr MacPherson 27 October pages 31-32
130 Mr MacPherson 27 October pages 36, 39
131 FI_0055 paras 115, 128 Inquiry Witness Statement of Mr MacPherson
132 Mr MacPherson 27 October page 39, Mr Stewart 5 November pages 28-29 and FI_0031 para 54 Inquiry Witness Statement of Mr Geddes
133 DB_0003
134 FI_0056 paras 52-53 Inquiry Witness Statement (Supp.) of Mr MacPherson
135 Mr MacPherson 27 October page 43
136 FI_0055 para 118 Inquiry Witness Statement of Mr MacPherson
137 DB_0142h and FI_0055 paras 114-116 Inquiry Witness Statement of Mr MacPherson
138 FI_0055 para 127 Inquiry Witness Statement of Mr MacPherson
139 FI_0055 para 125 Inquiry Witness Statement of Mr MacPherson
140 Mr MacPherson 27 October page 35ff

5.71. Mr MacPherson found a further digit which he considered also belonged to Mr Asbury, but it was not to the standard then required, being less than ten points, and he would not have mentioned it when he phoned the results out.[141]

Mr Stewart

5.72. Mr Stewart did not recall being told anything about the mark beforehand by Mr MacPherson; it was not Mr MacPherson's style to give detailed briefings.[142] QI2 was one among thousands of marks he had compared over the years and he did not recall exactly how he went about comparing it.[143] He would have done it in his usual way, using glasses and looking at the mark and print simultaneously. Once he had identified 16 characteristics in sequence and agreement he would have stopped. There would have been no point in continuing. "On screen" on the photograph meant that it had been put on the comparator screen for viewing but it did not mean that he had used the screen for his comparison. He could not remember if he saw anyone's markings on the screen. He might have marked the comparator with his views but he did not think that he used it.[144]

Mr Geddes

5.73. Mr Geddes also said that "on screen" indicated that the mark and photograph had been placed on the comparator for various examiners to view.[145] He explained that the two parts of the mark could not be done at the same time as one could not get two separate marks on the screen at once. Clearly the comparisons had been done on the same day but he could not tell whether one had been done immediately after the other.[146]

5.74. He recalled being asked to check QI2, and acknowledged that if the order of the initials on the photograph reflected the order in which examiners looked at the marks, it was different for the two individuals.[147] He could not recall whether he viewed QI2 only on the comparator or under glasses or both, but the option was there to use the comparator. That could include starting with the points left on screen by the previous examiner, and, as a second, third or fourth checker, only using the comparator. There would have been markings on the screen before he started but his preference was to wipe them off as they could obscure the location of the particular ridge characteristics. He would have used his normal approach. The markings on screen were what the first examiner considered necessary to demonstrate an identification and it was down to the checker to test that. The checker carried out his own analysis and comparison. If he was comfortable on the comparator then he would carry on there, but otherwise he would remove it and do the work at his desk.

5.75. Mr Geddes said that he and Mr MacPherson had discussions over markings on the comparator, but unless he could replicate it to the same level of confidence, it was immaterial what Mr MacPherson had marked up or not. He would test what was on the comparator to ensure he could actually see what the previous examiner could,

141 FI_0055 para 128 Inquiry Witness Statement of Mr MacPherson
142 FI_0036 para 169 Inquiry Witness Statement of Mr Stewart
143 Mr Stewart 5 November page 45
144 FI_0036 paras 172-174 Inquiry Witness Statement of Mr Stewart
145 Mr Geddes 26 June page 67 and FI_0031 para 53 Inquiry Witness Statement of Mr Geddes
146 FI_0031 para 54 Inquiry Witness Statement of Mr Geddes
147 Mr Geddes 26 June page 67

and could justify what was there.[148] He found QI2 of poor quality, but better than Y7 and with less distortion or movement. His recollection was that it was not a clear-cut, run-of-the-mill mark. There had been interference with the mark which made ridge detail difficult to find but it was of a quality they were used to working with in Glasgow.[149] He was able to identify the mark as Miss Ross's and to find 16 points on the comparator illustrating that.[150] He verified the identifications made.[151]

Mr Bruce

5.76. Mr Bruce had no recollection of having been involved in QI2 even when Chief Inspector Griffiths[152] spoke to him in 1999 to say his initials were on the photograph. He said that one looked at so many things on the comparator back then it would be impossible to remember every one.[153]

5.77. In 2006 he prepared a charted enlargement of QI2 Ross[154] in connection with Ms McKie's civil case but could not recall who had asked him to do this. The charting showed 12 points; he was unable to complete a full 16-point comparison. What he had been asked to do was to mark what he possibly could have seen nine years before. Because he had no recollection it was a somewhat artificial thing to try to do.[155]

5.78. He could not recall if, in 1997, he had been asked to do an elimination or an identification. His initials appeared third for QI2 Ross and fourth for QI2 Asbury which could suggest that he had been third and fourth checker respectively, but he could not recall how many people were required then.[156] He thought that he would have seen from the comparator that it was an elimination form, and not a charge form, so he would know it was an elimination and they were treated differently "as far as he could recall".[157] If he had eliminated it and his name was put on the back of the photo then he would assume he must have got at least ten points.[158] He would not have had enough to take QI2 Ross to court, but told the Inquiry he was prepared to assign ownership to Miss Ross as an elimination.[159]

5.79. Mr MacPherson was sure he would have said to Mr Bruce that this was an important mark and he needed four people to sign it to the 16-point standard before he could phone the result out. His understanding was that Mr Bruce saw the mark to 16.[160]

5.80. Mr Bruce observed that his initials were not on the case envelope and he thought that one explanation for this could be that he had been unable to get to a full

148 Mr Geddes 26 June pages 67-73 and FI_0031 para 55 Inquiry Witness Statement of Mr Geddes
149 FI_0031 para 58 Inquiry Witness Statement of Mr Geddes
150 FI_0031 para. 55 Inquiry Witness Statement of Mr Geddes
151 FI_0031 para 65 Inquiry Witness Statement of Mr Geddes
152 Mr Griffiths succeeded Chief Inspector O'Neill as Head of the Fingerprint Bureau on 30 March 1998 - CO_2081 Mackay enquiry statement of Mr Griffiths
153 Mr Bruce 9 July pages 154-156
154 SG_0751
155 Mr Bruce 9 July page 159ff and Mr Bruce 10 July pages 2ff
156 Mr Bruce 10 July pages 56ff
157 Mr Bruce 10 July page 17
158 Mr Bruce 10 July page 23
159 Mr Bruce 9 July page 163 and Mr Bruce 10 July pages 10-11, 15, 56ff
160 Mr MacPherson 27 October pages 30-34

16 points.[161] Mr MacPherson disagreed with this suggestion. He had "to make the identifications, get them signed off" and phone them out to keep the police abreast of developments.[162]

The timing

5.81. The result on QI2 was phoned out to the police on 31 January, the day of Mr Asbury's full committal hearing. The note on the photograph is that Mr MacPherson made the call at 12:25. Mr Heath passed the information to the fiscal, though Mr McMenemy did not recall receiving the information directly from him.[163]

5.82. Mr McMenemy told the Inquiry that at this time full committal hearings were heard in Kilmarnock in the afternoon after 2pm. He only learned about the mark being identified as Miss Ross's some time later, but even if this adminicle of evidence was available to the procurator fiscal depute who appeared in court that day it would not have been placed before the sheriff at the hearing. During such hearings no information regarding the case would be given to the sheriff other than the charge. The detail of the case would only be put before him if there was an opposed application for bail. Generally the fact that the Crown's position was to fully commit was taken on the basis that there was a prima facie case which did not require to be explored in any detail by the sheriff. Therefore there would be no substantive discussion in court.[164]

5.83. Mr McMenemy[165] and Mr Crowe[166] had somewhat different recollections as to the significance or otherwise of the information about QI2.

5.84. Mr Crowe was not involved at the time and had never seen the police report in the Asbury case.[167] It was only later that he became involved, as Deputy Crown Agent in the Crown Office.[168] He said "I think my understanding was that David Asbury was not fully committed a week after first appearance, which is the norm, it was eight days, which sometimes happens when it is a bigger case and there are difficulties or whatever." In such a situation "the police may be scurrying about at the last minute to gather all the evidence that they have and put it in a written form for the fiscal." "The police would not necessarily know all the mechanics of the Crown Office side but they would be aware that they had, basically, a week to bring a better case back to meet the standard of committing somebody for trial and if they did not do that within a week, they had one more day and then that was it. Somebody might well be released."[169]

5.85. He recalled[170] a comment made by Mr McMenemy on 30 July 2000 when he took Mr Rasmussen and Mr Rokkjaer to Kilmarnock.[171] "Mr McMenemy's recollection was that at the very last minute the police were able to produce the Marion Ross

161 Mr Bruce 9 July page 164
162 Mr MacPherson 27 October pages 31,38
163 FI_0013 para 230 Inquiry Witness Statement of Mr Heath and Mr McMenemy 11 June pages 117–118
164 FI_0073 paras 22, 24 Inquiry Witness Statement of Mr McMenemy
165 Mr McMenemy 11 June pages 120–122
166 Sheriff Crowe 2 July pages 130-136
167 Sheriff Crowe 2 July page 131
168 FI_0048 paras 3–6 Inquiry Witness Statement of Sheriff Crowe
169 Sheriff Crowe 2 July pages 132-136
170 Sheriff Crowe 2 July pages 130–136 and FI_0048 para 16 Inquiry Witness Statement of Sheriff Crowe
171 See chapter 13

fingerprint on the biscuit tin found in David Asbury's home and he had been slightly suspicious about that at the time. He was aware that it was an evidentially thin case from the outset and police (sic) had been especially thorough in their search for evidence." Mr Crowe thought that Mr McMenemy had remarked on it being right up to the wire.[172]

5.86. Mr McMenemy said that he always thought there was a reasonably strong case on the facts and circumstances against Mr Asbury even in the absence of Miss Ross's print being found on the tin.[173] He had no recollection of receiving a telephone call about QI2 but, in any event, it would not have mattered because the fiscals had their instruction from Crown Counsel on 30 January.[174] However, it was helpful, "as another layer of evidence" and one which indicated a financial element to the case. "I do not recall being suspicious of it certainly, not in the least."[175]

The other records for QD2 and QI2

5.87. There was no record of the series of marks which included QD2 and QI2 being checked against anyone other than Mr Asbury and Miss Ross. Mr Heath indicated that the police interest in the tin and money would not have been confined to Mr Asbury and Miss Ross, because he was of the view that more than one person had been involved in the crime.[176]

5.88. Mr MacPherson explained that in this case SCRO would only compare certain marks against certain elimination forms, based on information coming from the officer-in-charge. For example there were marks from money[177] and SCRO only had to compare a specific set of eliminations with them. QI2 might have been compared only against Mr Asbury and Miss Ross in the light of the information that SCRO had about the tin. Form 13B indicated that the mark was to be compared with the deceased, a completed field in the form indicated that Mr Asbury was a suspect, and SCRO knew that the tin had come from Mr Asbury's house. So the logical approach would have been first to compare the marks forming QI2 against David Asbury's prints and determine which marks were fragmentary and insufficient or made by David Asbury and second to compare any outstanding mark(s) against Marion Ross's prints.

5.89. Once a mark was resolved no further comparisons were carried out or required. The cross through the columns in the elimination worksheet for the series QB2-QL2[178] signified that there was no need to compare these marks against the persons listed, and the marks worksheet[179] showed that all of the marks in this bundle were determined to be fragmentary and insufficient or identified as that of Mr Asbury or Miss Ross. There was therefore no more work to be done on them.[180]

172 Sheriff Crowe 2 July pages 130-136
173 FI_0073 para 17 Inquiry Witness Statement of Mr McMenemy
174 Mr McMenemy 11 June pages 117-119
175 Mr McMenemy 11 June pages 120-122
176 FI_0013 para 227 Inquiry Witness Statement of Mr Heath
177 There were other marks from money in addition to those in the QB2-QL2 series.
178 CO_0197 pdf page 3
179 DB_0003 pdf page 25
180 Mr MacPherson 27 October page 74 and FI_0056 paras 54, 59-61 Inquiry Witness Statement (Supp.) of Mr MacPherson

Commentary

The standard applied

5.90. With the exception of the marks made by Miss Ross any others that were found could have been made by a suspect. It was therefore not inaccurate for Mr MacPherson to describe it as a "whodunit". The evidence suggests that there was an ill-defined flexibility within operating procedures in a case such as this. It was left to Mr MacPherson to select the standard to which examiners were to work.

5.91. There was an absence of written operating procedures resulting in a lack of clarity both as to the standard being applied and the number of checkers. It may be that if an examiner knew that he or she was being asked to be third or fourth checker then it must be an 'identification' and accordingly the 16-point standard was in play. This does not appear to have been clear. It was not evident that Mr MacPherson told everyone, and there was not a universal understanding among the SCRO examiners that he had decided that the comparisons were to be to 16 points.

5.92. While this did not affect those who ultimately came to prepare the joint reports for use at the trials in *HMA v Asbury* and *HMA v McKie,* because they certainly applied the 16-point standard, others involved in the background may not have applied that standard. In relation to Y7 that was the case in relation to those who were involved in the exceptional re-checking exercises including the 'blind trial'[181] and in the case of QI2 Ross there is uncertainty as to the standard applied by Mr Bruce which cannot be resolved because no contemporaneous notes were kept.

Information made available to SCRO

5.93. Mr Heath explained that it was unusual for him to have been working closely with SCRO but this investigation was particularly focussed on fingerprints. There were more than 400 fingerprints from the house and it was important to have all of these identified or eliminated. It was only in this particular investigation that there were strategy meetings with SCRO, who were mainly independent. The police had to keep in mind that SCRO were also taking in other prints from other enquiries including murder investigations.[182]

5.94. It was accordingly normal, and, it appears, essential, for SCRO to be given information in a case such as this where they were dealing with a large number of marks, in order that they could prioritise their work. Also, it was important to the police investigation both that people were eliminated from their enquiries and that there was speedy identification of suspects. So there were sound operational reasons for the police to give information to SCRO, both for resources and speed.

5.95. One can also appreciate the desire to foster team-working as Mr Heath and Mr McAllister indicated and Mr Heath, as SIO, wanting to signal his acknowledgement of SCRO's contribution to the overall investigation through for example the strategy meetings and his personal visit to the office.[183] Nonetheless, there are associated risks, as the HMIC report in 2000 observed:

181 See chapter 7
182 Mr Heath 9 June pages 41-44
183 Mr Heath 9 June pages 45-46

> "One of the key issues concerning the working practices of fingerprint experts is the need for independence and for experts to be able to work in an environment free from outside influence and pressures. Examples of such pressures can include closeness to the police investigation where knowledge of certain details of the crime or the police enquiry could result in pressure to 'get a result'."[184]

5.96. Of particular concern is where the information that is communicated goes beyond what is necessary to prioritise work and contains contextual detail that may influence fingerprint examiners in carrying out their comparisons. An example is information relating to the 'shape in dust' that at one point was under consideration as providing a possible link between the tin and Miss Ross's house.

5.97. The risks generally associated with contextual information are discussed in chapter 28.

XF

5.98. The fact that SCRO knew about the gift being "current" does not appear to have had a specific impact on the speed with which XF was identified. XF had been the only 'outstanding' mark in its bundle from Wednesday 15 January and it was not until the following Tuesday 21 January that it was identified as Mr Asbury's. There does not seem to be any issue there.

'Ident required for deceased' and QI2

5.99. The phrase 'ident required for deceased' on the incoming form 13B had the potential, as Mr Heath and others identified at the Inquiry, to be interpreted as requiring or expecting SCRO to produce a particular result. It could be read as being an instruction to find a mark that belonged to Miss Ross on the tin and contents.

5.100. This was a tin, with a large sum of money inside, found in the now accused's home and at this stage of the murder investigation a clear line of enquiry was to find out, as speedily as possible, if it could be linked back to Miss Ross. It was therefore unavoidable that the police had to convey to SCRO, in this instance through the Identification Bureau, that they were to check any marks on these items against Miss Ross.

5.101. I am satisfied that there was an innocent explanation for the wording used. The fields on form 13B were intended to give SCRO information about relevant prints but they contained only two categories: for 'eliminations' or 'suspects'.[185] Marks identified as having been made by the deceased would not fall into the category of 'suspects' and ordinarily marks being considered for 'elimination' (such as marks made by the deceased in her own home) would not be incriminating. The tin and money found in Mr Asbury's home did not fit readily with the usual distinction between 'eliminations' and 'suspects'. The presence of Miss Ross's print on that tin would have been incriminating evidence and therefore this comparison was a 'hybrid'.[186] This is evident also from the case envelope on which Mr MacPherson had to create a category of "Elim ident" for QI2 Ross as the proforma did not have

184 SG_0375 para 8.15.1
185 See chapter 22
186 Counsel to the Inquiry to Mr Padden 23 June page 56

space for such.[187] I do not consider there was any intention to convey an instruction to SCRO, nor that SCRO read it in such a way. There was no impropriety. However, the somewhat loose use of language was unfortunate.

The timing of the result for QI2

5.102. The timing of the result for QI2 Ross and QI2 Asbury[188] was such as to give rise to a suspicion either that QI2 was a rushed job, or that SCRO were under pressure to find a mark for Miss Ross on the tin because that was critical to Mr Asbury being fully committed. Neither suspicion has foundation.

5.103. A note from Mr McAllister to Mr Heath ("Stephen") on the Saturday (25 January)[189] does mention that the notes had all been dipped in fluid and that Mr Gibbens would start Quaser examination of them on the Monday at the latest. One of SCRO's notes mentioned that "marks (if any) from money" were not yet with them.[190] It was not until the Wednesday (29 January) that the marks reached SCRO. SCRO did attend to the marks that day, and Mr MacPherson was able to intimate when he was at the liaison meeting which Mr Heath attended that afternoon that Asbury marks had been identified on the tin and money.[191] Priority was clearly given to them, although it is also to be noted that by this time fewer marks needed identification. Whereas as at 13 January SCRO were working on the 175 marks found so far, by 23 January only around 18 marks were outstanding.[192]

5.104. Mr Heath's note of the meeting on 29 January does indicate that he wanted all outstanding marks eliminated if possible. But SCRO did not phone out the result of QI2 Ross until the Friday (31 January) lunchtime, a timescale which is not consistent with SCRO being under significant pressure to produce a "result" for QI2.

5.105. The timing of the result relative to the court appearance of Mr Asbury was coincidence and nothing more. The finding of Miss Ross's mark was a material development but it was not significant to the committal of Mr Asbury. The significant point is that Crown Counsel had taken the decision on 30 January, the day before, to instruct the procurator fiscal to apply for Mr Asbury's 'full committal'.

5.106. I accept the evidence of Mr McMenemy that the telephoned result of the identification of QI2 Ross was not material to either the decision by COPFS to make an application for his full committal nor to the order made by the sheriff. That is irrefutable given that the instruction from Crown Office to the fiscal was contained in a letter dated 30 January 1997.[193]

187 See chapter 22
188 See para 62 above
189 AC_0044
190 See para 40 above
191 See para 62 above
192 CO_1706 - Mr McAllister's note
193 CO_4033

CHAPTER 6

SCRO: THE IDENTIFICATION AND VERIFICATION OF Y7

Examination of the marks in the bundle Y7-V9

6.1. SCRO's worksheets showed that the bundle of marks Y7-V9 was being examined from Sunday 19 January.[1] Marks in the bundle were compared, for example, against the prints of scene of crime officers[2] and from 3 February against persons on a list of police staff. [3] The initials on the worksheets show that at least seven different examiners had been involved in comparing and checking the marks in this bundle before Y7 was identified. The initials of Mr Geddes and Mr MacPherson both appear on the sheets in this period.

6.2. Sometimes the police told SCRO which marks were to be checked against which people in order to narrow their focus and therefore prioritise their workload but the batch Y7 – V9 was being checked against all officers on the list.[4]

6.3. The partial palm print Z7, which was found close to Y7, was in this batch. SCRO set it aside as fragmentary and insufficient and given SCRO's working practices this would have happened early in the process.[5]

6.4. Mr Heath's briefing notes for Tuesday 4 February[6] recorded that the number of fingerprints still to be addressed was down to four, including one on "hoover bedroom door" (which is taken to be a reference to C8) and "1 on bathroom door facing" (Y7).[7]

6.5. The worksheets showed the bundle Y7 – V9 being examined into March 1997, but the bundle would be reducing in size as the photographs of marks for which a conclusion had been reached (fragmentary and insufficient, identified as, etc) were removed. Once Y7 was identified it would have been taken from the bundle and not compared against anyone else's prints.[8]

6.6. Y7 was not one of the marks run through the AFR system.[9] The computer could not use a mark which was distorted, twisted or superimposed.[10]

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1 CO_1444 and CO_1446
2 In one of the case envelopes, DB_0253, a manuscript sheet dated 23.1.97 (DB_0257) noted: "Checked against Y7-Y9 - Graham Hunter, Michael Moffat, David Thurley, David Ferguson, Stewart Wilson."
3 CO_0198
4 CO_0198
5 When marks were received, an examiner would check the documentation then assess which were "fragmentary and insufficient" – see chapter 22. For the reasons given in chapter 1 Z7 was only investigated by the Inquiry to the extent mentioned there.
6 AC_0054
7 FI_0013 para 239 Inquiry Witness Statement of Mr Heath
8 FI_0055 paras 137-138 Inquiry Witness Statement of Mr MacPherson, FI_0056 paras 35, 40 Inquiry Witness Statement (Supp.) of Mr MacPherson. See chapter 22.
9 DB_0261 listed marks searched on the AFR system in the Marion Ross case (FI_0056 para 137ff Inquiry Witness Statement (Supp.) of Mr MacPherson, FI_0032 para 10 Inquiry Witness Statement Supp. of Mr Geddes and FI_0036 para 210 Inquiry Witness Statement of Mr Stewart). Of the marks considered by the Inquiry only XF was listed.
10 FI_0046 para 87 Inquiry Witness Statement of Mr Mackenzie

Receipt of Ms McKie's prints

6.7. Ms McKie said she mentioned the need to compare her prints on Thursday 6 February. She was no longer working on the murder investigation but had learned that Mr Asbury had been arrested and the tin recovered and explained to a member of the HOLMES unit that as she had handled the tin her prints should be compared against any impressions found on it.[11] SCRO did not have her prints and requested them that day, as well as those of other officers.[12] Because Ms McKie's ten prints could not be found in the police records Mr Shields took another set from her.[13] They were supplied to SCRO on 7 February and Mr Geddes added her name to the list on the elimination sheet.[14]

6.8. Although it might have been considered that Ms McKie's relevance was limited to the tin, once she was included in the list of police officers for 'elimination' she would have been checked against the Y7-V9 batch like the other officers on the list.

The identification and verification of the mark

Identification by Mr MacPherson

6.9. Mr MacPherson did the initial comparison of Y7 with Ms McKie's prints. It was a random occurrence that he was the person to do so.[15] Although his initials do not appear frequently on the worksheets for this bundle he had compared "a Martin Fairley" against Y7 on Friday 7 February, and said he might have compared the mark to the prints of other officers before he got to hers.[16] Although his initials did not appear before then on the 'police' elimination sheet, he thought that it might not be complete. It does appear that he was the first person to check the bundle against, for example, Miss Ross's prints and Mr Asbury's.[17]

6.10. Mr MacPherson was not sure when exactly he compared Y7 with Ms McKie's prints, but his initials and the date "10/2" were on the elimination sheet, under the heading "COMP",[18] suggesting that he did so on 10 February.

6.11. Mr MacPherson recalled taking "a long time" (he thought a minimum of thirty minutes) to identify Y7 as being Ms McKie's as he looked at it originally under glasses and also spent some time on the comparator with it.[19]

6.12. In his witness statement he described it as a distorted mark, which looked as if it had been twisted and pulled down at the tip.[20] In oral evidence he gave various descriptions. It had either been put on, lifted and then rolled up to the tip, or put on and lifted, slightly turned and put back down again. There was compression of

11 FI_0071 para 61 Inquiry Witness Statement of Ms McKie
12 FI_0055 para 134 Inquiry Witness Statement of Mr MacPherson and FI_0031 para 85 Inquiry Witness Statement of Mr Geddes
13 FI_0071 para 62 Inquiry Witness Statement of Ms McKie and ST_0004h
14 FI_0031 para 85 Inquiry Witness Statement of Mr Geddes and CO_0198 The various steps were recorded on the HOLMES system (CO_1432, CO_1434, CO_1697 and CO_ 1700).
15 FI_0055 para 144 Inquiry Witness Statement of Mr MacPherson
16 FI_0055 para 146 Inquiry Witness Statement of Mr MacPherson and CO_0198
17 CO_1444 on 19 and 21 January respectively
18 FI_0055 paras 144 and 151 Inquiry Witness Statement of Mr MacPherson, FI_0056 para 39 Inquiry Witness Statement (Supp.) of Mr MacPherson and CO_0198
19 Mr MacPherson 27 October page 60
20 FI_0055 para 150 Inquiry Witness Statement of Mr MacPherson

ridges, probably caused by the bone at the tip of the thumb being pressed really hard when it was deposited.[21] An alternative description was that the lower part of the mark was a single touch which could have been placed first and then an anticlockwise movement to the top or alternatively the tip placed first, clockwise movement and then placed again.[22]

6.13. He regarded the top of the mark as fragmentary and insufficient. He accepted that there were one or two characteristics at the top (what has become known as the Rosetta and possibly a bifurcation above it) but he could not count through to this.[23]

6.14. He considered that Y7 was a loop to the left.[24] This he supported by reference to the ridge flow in the bottom part of the mark. He accepted that the ridge flow in the top section looked like that of a right thumb but he said it was not: "It is just the way the mark has been placed on the door surround."[25]

6.15. Mr MacPherson said that his knowledge of the door-frame from his visit to the house would have helped in this analysis.[26] He described the lower part of the mark as pointing in an inwards direction to the bathroom. His explanation of this observation was difficult to follow and it may have meant no more than that it was the ridge flow in the bottom of the mark, rather than the finger itself, which was orientated in that direction. His drawing of the tip of the thumb was consistent with that part of the finger facing outwards from the bathroom.[27]

6.16. Having concluded that Y7 was a loop to the left, in processing elimination forms he would have been excluding things that were not a loop to the left. When he found Ms McKie's print was a loop to the left that was a start for his examination.[28]

6.17. He applied the 16-point standard in examining the mark. That was the standard that he was applying generally to the marks in this case but more particularly for Y7.[29] "The mark was two feet away from where the body had been discovered; so it does not take a top detective to know that the officers in charge of the case would probably be interested in it."[30]

6.18. The manner in which he conducted his analysis and comparison is summarised in chapter 28.

6.19. Once he had made an identification he asked Mr Geddes to do the second check[31] and might have told him the mark was that of a police officer (the ten-print form[32] would have disclosed that fact anyway because Ms McKie was named as "Shirley

21 Mr MacPherson 27 October page 110
22 Mr MacPherson 28 October page 87
23 Mr MacPherson 27 October page 110
24 Mr MacPherson 28 October pages 46-47
25 Mr MacPherson 27 October page 112
26 FI_0055 para 146 Inquiry Witness Statement of Mr MacPherson
27 Mr MacPherson 27 October pages 102-113 and FI_2710.06
28 Mr MacPherson 28 October pages 46-47
29 FI_0055 para 148 Inquiry Witness Statement of Mr MacPherson, Mr MacPherson 27 October pages 40–42 and 3 November pages 61-65
30 Mr MacPherson 27 October page 40
31 Mr MacPherson 27 October page 63 and 3 November pages 99-101 and FI_0055 paras 55, 149, 152 Inquiry Witness Statement of Mr MacPherson
32 ST_0004h

Cardwell DC") and indicated there might be repercussions because it was found so close to the body of the victim.[33]

Mr Geddes's examination of the mark and print

6.20. Mr Geddes was the other examiner assigned to the fingerprint work in the Marion Ross case.[34] The worksheets show that he compared or checked the marks in the Y7–V9 bundle against a number of individuals prior to the comparison with Ms McKie's print form,[35] and he was recorded as one of the verifiers for each of XF, QD2 and QI2.

6.21. Mr Geddes said when Mr MacPherson "ultimately succeeded in finding the elimination for Y7" and asked him to do the second check he would have told him he had eliminated it as a police officer's mark.[36] His recollection was that Y7 was handed to him in paper form and not on the comparator. He initially examined it using glasses and then put it on the comparator.[37]

6.22. He had been with Mr MacPherson at the locus to look at another mark and saw Y7 in situ but in his evidence to the Inquiry he did not place much reliance on what he saw that day, saying no more than that it indicated to him that Y7 had the potential to be a left thumb print.[38]

6.23. He declined to comment on whether anyone viewing Y7 in situ could draw an inference as to whether the person who made the mark was looking into or out of the bathroom at the time, as his knowledge, training and experience was to do with orientation of marks but not body alignment. That was outwith his expertise, he could only draw on the detail disclosed by a mark.[39]

6.24. He described Y7 as a complex mark that seemed to have been subjected to movement, as if it had been placed onto the door-frame and then twisted. In his view, if it was looked at "up from the core" it became elongated, indicating "severe" movement.[40] The movement was clear to him.[41] When he could not work from top to bottom due to the movement he concentrated on the bottom of the mark and found "sufficient volume of ridge detail to assign ownership of the mark".[42] He then counted ten points of comparison and was satisfied that Y7 was Ms McKie's left thumb print.[43]

Mr Geddes's discussion with Mr MacPherson

6.25. Once Mr Geddes told Mr MacPherson he was happy to eliminate it, Mr MacPherson asked him to get 16 points. [44]

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33 FI_0055 para 152 Inquiry Witness Statement of Mr MacPherson
34 Mr Geddes 26 June page 74, Mr MacPherson 3 November page 71
35 CO_1444 and CO_1446
36 FI_0031 para 97 Inquiry Witness Statement of Mr Geddes.
37 FI_0031 para 101 Inquiry Witness Statement of Mr Geddes
38 See chapter 4 para 22
39 Mr Geddes 26 June pages 104–105, 143–145, also chapter 4 para 22
40 FI_0031 para 99 Inquiry Witness Statement of Mr Geddes
41 Mr Geddes 26 June page 128
42 FI_0031 para 101 Inquiry Witness Statement of Mr Geddes and Mr Geddes 26 June pages 127-128
43 FI_0031 para 101 Inquiry Witness Statement of Mr Geddes and Mr Geddes 26 June pages 19-20, 126-127
44 FI_0055 para 153 Inquiry Witness Statement of Mr MacPherson and FI_0031 para 103 Inquiry Witness Statement of Mr Geddes

6.26. He told the Inquiry he looked at the mark further on his own to see if he could find 16 points. He and Mr MacPherson then discussed the mark and Mr MacPherson used the comparator and marked up the points that he could see. Mr Geddes explained his difficulty, and marked up what he saw. He told Mr MacPherson that he was not comfortable identifying 16 points. He could see the sequence marked up by him but was not confident enough of some of the points.[45] Mr MacPherson said it was "a professional discussion. Alister still felt that he was only with the ten that he saw at that time and that was it. That was fine. He was basically identifying the mark but just not to 16."[46] There was no pressure on Mr Geddes to find 16 points.[47]

6.27. Mr Geddes did not sign the elimination sheet because Mr MacPherson was looking for an identification to 16 points and he was unable to commit to that.[48]

6.28. Mr Geddes told the Inquiry that in 2005, in connection with Ms McKie's claim for compensation, he was able to find 16 points and he suggested that that might have been down to his greater experience by then.[49] In 1997 he had not been surprised that Mr MacPherson had found more points than he had because Mr MacPherson had "a vast amount of practical experience".[50]

Next step

6.29. Had Mr Geddes said this was a misidentification Mr MacPherson would have had to report to the chief inspector[51] but the fact that it was only a difference of opinion as to the number of characteristics in an otherwise agreed identification meant that Mr MacPherson could go to another fingerprint officer.[52]

Verification by Mr Stewart

6.30. Mr Stewart was asked to look at the mark and the ten-print form by Mr MacPherson.[53] He did not remember anyone telling him at the time that Mr Geddes had looked at it and found ten. He became aware of Mr Geddes's involvement later, possibly when they were preparing evidence for court but he could not be sure.[54]

6.31. Mr Stewart remembered looking at Y7 but did not have a clear recollection of how he did the comparison.[55] He said he was not given background information about whose print it was or the significance of it. The photograph might have had the mark "No 6" with an arrow on it, to indicate that it was a left thumb and the direction of the mark, as that was what Mr MacPherson normally gave an examiner.[56] He would have carried out the comparison using glasses, looking at the mark and the

45 FI_0031 para 103 Inquiry Witness Statement of Mr Geddes
46 Mr MacPherson 27 October page 83 and FI_0055 para 154 Inquiry Witness Statement of Mr MacPherson
47 FI_0031 para 104 Inquiry Witness Statement of Mr Geddes
48 FI_0031 para 107 Inquiry Witness Statement of Mr Geddes
49 FI_0031 paras 104 and 109 Inquiry Witness Statement of Mr Geddes
50 FI_0031 para 103 Inquiry Witness Statement of Mr Geddes
51 FI_0055 para 155 Inquiry Witness Statement of Mr MacPherson and FI_0031 para 105 Inquiry Witness Statement of Mr Geddes
52 Mr MacPherson 27 October page 83 and FI_0055 paras 73-81 Inquiry Witness Statement of Mr MacPherson
53 FI_0036 para 136 Inquiry Witness Statement of Mr Stewart
54 Mr Stewart 5 November pages 76-77
55 Mr Stewart 5 November pages 46-47, 60
56 Mr Stewart 5 November pages 173-174

known print at the same time. He did not remember using the comparator screen though he might have done so.[57] His decision-making was always on the basis of using two glasses.[58]

6.32. He did not find it a quick and easy mark[59] and regarded it as complex[60] and of poor quality, by which he meant that there were not a lot of ridge characteristics in it (the average mark might have 20 or 30 but Y7 did not contain a lot), and it contained areas where there was obviously pressure or movement, distortion.[61] He would have spent a reasonable time on it because of the quality but could not say how long.[62]

6.33. Asked whether he had considered the upper part of the mark, he thought there were two reasons why he did not spend long on that part. Firstly there appeared to be a lot of movement and distortion. Secondly, at that time the fingerprint form he had did not show a lot of the upper part of the mark. All that he could remember was that there were considerable signs of movement, superimposition, maybe even a double touch, so he left it out of his comparison and worked with the area of the mark he deemed viable, which he thought was the bottom half.[63]

6.34. When he reached 16 points he would have stopped because there was no need to go beyond that. He might have reached his conclusion before this.[64]

Verification by Ms McBride

6.35. Ms McBride was asked by Mr MacPherson to compare Y7, which she did in the middle of doing another case.[65] She was also one of the verifiers for QD2.

6.36. Mr MacPherson handed the mark and elimination form to her.[66] Her recollection was that Mr MacPherson told her that it was a whodunit and that the marks were being eliminated to the 16-point standard. He also told her that it appeared that the mark had been made by a police officer near to the body of Marion Ross.[67] He did not mention that Mr Stewart had examined the mark but did say that Mr Geddes had done so and could not find 16 points of similarity, which she took to be to emphasise to her that if she thought it was a difficult identification she did not have to sign.[68]

6.37. On an initial glance looking at the top of the mark she thought it was a right thumb "because of the slope at the top" but when she looked at it closely she realised it was not. She said that she looked at the right thumb,[69] and checked it against Ms McKie's left thumb.[70]

57 Mr Stewart 5 November page 47
58 Mr Stewart 5 November pages 48, 61
59 FI_0036 para 135 Inquiry Witness Statement of Mr Stewart
60 FI_0036 para 142 Inquiry Witness Statement of Mr Stewart
61 Mr Stewart 5 November pages 61-62
62 Mr Stewart 5 November page 62
63 Mr Stewart 5 November pages 84-86, 97-98, 166-167
64 Mr Stewart 5 November pages 67-68
65 Ms McBride 6 November pages 82-86, 153
66 Ms McBride 6 November pages 120-121, 124, 126
67 Ms McBride 6 November pages 81-84
68 Ms McBride 6 November page 88ff
69 Ms McBride 6 November pages 126-127
70 Ms McBride 6 November page 126

6.38. It was clear to her that Y7 was not a continuous print, which was not to say that it was not put down at the same time. She recalled that it was "broken" and that it was moved at the top, but other marks also had movement in them. There was nothing particularly interesting about this mark, though later it turned out it was a very complex mark if one studied the movement in detail. The mark was in pieces and she described the top as a "mishmash".[71] There were a couple of points here and there but it was insufficient for comparison. She said that she must have seen the Rosetta and discounted it: she described it "existing in the twilight zone between the two [parts of the mark]".[72]

6.39. At the time she focussed on the bottom part. She was likely to have started at the core and working out and she checked every characteristic in the clear part against both the plain and rolled impressions and got over 16 points.[73]

6.40. She spent a long time on the mark. Mr MacPherson came over and asked her if she was finished but she told him she was not, and to go away.[74] She studied it under glass. Once she was finished she had a conversation with Mr MacPherson about recording initials on the back of the image and only then did she learn that Mr Stewart had identified it.[75] She marked three sets of initials on the back and handed it back to Mr MacPherson, who continued down the office to get a fourth checker.[76]

Verification by Mr McKenna

6.41. Mr McKenna was then asked to look at the mark by Mr MacPherson.[77] He was also one of the verifiers for XF. His team was dealing with two murders at the time. There was never any issue about the time one could spend examining marks; it was just a case of managing resources.[78]

6.42. He was not given any information before he looked at it[79] but he knew he was the fourth checker and thought he would have been aware that 16 points had already been identified by Mr MacPherson, Mr Stewart and Ms McBride.[80] He was not aware of the prior involvement of Mr Geddes until after Ms McKie's trial.[81]

6.43. He believed that it was on the comparator when he first saw it and he thought there were signatures on the side of the comparator but could not remember if there were other markings. He removed Y7 from the comparator and carried out a comparison at his desk.[82] This is not readily consistent with Ms McBride's evidence but it is fair to observe that Mr McKenna's recollection of detail was vague, which is understandable given the passage of time and the fact that he did not give evidence at the trial in *HMA v McKie*.

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71 Ms McBride 6 November pages 131 and 143-144
72 Ms McBride 6 November pages 145-146
73 Ms McBride 6 November page 126ff
74 FI_0039 para 78 Inquiry Witness Statement of Ms McBride
75 Ms McBride 6 November pages 120-121
76 Ms McBride 6 November page 125
77 FI_0054 para 25 Inquiry Witness Statement of Mr McKenna
78 Mr McKenna 6 November page 24
79 FI_0054 para 26 Inquiry Witness Statement of Mr McKenna
80 Mr McKenna 6 November page 32
81 Mr McKenna 6 November pages 10-11
82 Mr McKenna 6 November pages 24-25

6.44. His evidence was that he would have had the form and photograph in front of him and, using linen glasses and pointers, scanned the mark and print together to find something to catch the eye in one or the other. Then he would have looked for characteristics in sequence and agreement and kept a mental count as he went along, stopping once he had 16. When he was satisfied with his identification he put it back on the comparator to confirm that he had 16 points in sequence and agreement.[83]

6.45. He could not remember if he noticed any differences and when asked if he considered at all the upper part of the mark he replied that the form he saw did not disclose that area. He remembered getting 16 points on the area he examined.[84]

Communication of checkers' conclusions

6.46. When Mr Stewart, Ms McBride and Mr McKenna were each finished they handed the mark and form back to Mr MacPherson and told him their conclusion.[85]

Recording the result

6.47. Ms McBride wrote the first three sets of initials on the photograph of Y7 (those of Mr MacPherson, Mr Stewart and herself).[86] Mr McKenna said that these initials were already on the image when it reached him and he added his.[87]

6.48. It was not documented in the case papers that Mr Geddes found ten points because the procedures did not provide for this at the time.[88]

Result phoned out

6.49. Mr MacPherson phoned Mr Heath with the result on the afternoon of 11 February.[89] This was recorded on the back of the photograph: "DCI Heath– informed of elimination overleaf by HMcP 16:05 on 11/02/97."[90]

Commentary

The involvement of Mr Geddes

6.50. Mr MacPherson said: "A fingerprint expert stands alone before the court….Everybody has to basically make their own personal decision as regards identity."[91] The fact that Mr Geddes adhered to his view shows he was prepared to hold to his position, even when the more experienced Mr MacPherson demonstrated his 16 points.

83 Mr McKenna 6 November pages 24-32
84 Mr McKenna 6 November page 32
85 FI_0036 para 143 Inquiry Witness Statement of Mr Stewart, FI_0039 para 83 Inquiry Witness Statement of Ms McBride and FI_0054 para 36 Inquiry Witness Statement of Mr McKenna
86 Ms McBride 6 November page 121ff
87 FI_0054 para 34 Inquiry Witness Statement of Mr McKenna
88 Mr Geddes 26 June page 139
89 FI_0055 paras 138, 139 and 156 Inquiry Witness Statement of Mr MacPherson
90 PS_0002h
91 Mr MacPherson 27 October pages 68-69

6.51. The decision by Mr MacPherson to pass on from Mr Geddes and to seek verification by other examiners was in accordance with the practice of the time in SCRO.

6.52. At the time Mr Geddes attributed his inability to confirm the existence of 16 common characteristics to relative inexperience (he was only three years qualified). As discussed in chapter 28, there is an alternative explanation and that is that those who believed that they were able to discern 16 points were applying an undue degree of tolerance and the inability of Mr Geddes to confirm this total was an opportunity for all to reflect on the tolerances that were applied, an opportunity that was not taken.

The examiners' comments on the mark

6.53. A detailed consideration of the opinion evidence relative to Y7 is contained in chapter 25. Points addressed there include the justification for concentrating on the lower part of the mark and the existence and significance of differences in the upper part of the mark. A critique of the SCRO examiners' reasoning in this regard is also given in chapter 28.

Previous incident

6.54. One incidental matter may be conveniently discussed at this point. It relates to a previous incident where Ms McKie's print was found on a production in a police investigation in 1993.

6.55. The Inquiry explored the question whether this previous incident was in the mind of any of the SCRO fingerprint examiners when they were examining Y7 in February 1997.

6.56. The background to the 1993 incident is set out in a report for the procurator fiscal by Mr Malcolm dated 3 April 1997.[92] Ms McKie was a production officer in an investigation and her print was found on a plastic bag which was an important production in the case. Mr Stewart,[93] Mr Terence Foley,[94] another SCRO fingerprint examiner, and Mr McKenna were involved in the examination of the fingerprints in that case. The suspicion at the time was that Ms McKie had lied when initially saying that she had worn gloves when handling productions. Subsequently it came to light in July 1998 that fingerprints could come through the latex gloves worn by police personnel,[95] so the finding of a print by Ms McKie did not support any allegation that she had lied. However, in 1997 the view reflected in Mr Malcolm's report was that Ms McKie had not been telling the truth in relation to the 1993 incident and the question is whether that had any bearing on the identification of Y7.

6.57. The witness statement of Chief Superintendent Hugh Ferry, the Director of SCRO,[96] taken by the Mackay enquiry states that the mark Y7 was significant for two reasons: because it was close to the body and because Ms McKie had been

92 CO_1457
93 CO_2634
94 CO_2643
95 CO_0911
96 The fingerprint bureau, generally called 'SCRO' for short in this Report, was part of the Scottish Criminal Record Office of which Mr Ferry was the Director - see chapter 21. Mr Ferry was deceased by the time of the Inquiry and is noted as having said that he did not have an opportunity to check his Mackay enquiry statement for accuracy – chapter 7 para 39.

involved in a previous incident where her print had been found on a bag "and she had denied handling the item". The statement continued: "As a result of *this* the mark had apparently been examined by four experts prior to me being informed."[97] (emphasis added). The word in italics is understood to refer to both of these reasons.

6.58. Chief Inspector William O'Neill, Head of the SCRO Fingerprint Bureau, (whose involvement is discussed in the next chapter) also mentioned, in the context of being told about the identification of Y7, that he was told by Mr Alan Dunbar (SCRO's Quality Assurance Manager),[98] Mr MacPherson and Mr Heath that Ms McKie "had done something similar before".[99] Mr O'Neill could not recall who said what nor in what order the conversations took place.

6.59. One possible explanation as to how the previous incident came to be mentioned in 1997 is to be found in the witness statement of DC Lunardi.[100] She said that, when SCRO requested elimination prints from Ms McKie, Ms McKie commented that her prints should be on file as one of her fingerprints had already been identified at a locus of a major incident, with Mr Shields then indicating the nature of the previous incident. Ms Lunardi said Mr Heath mentioned this incident to her during the week when Y7 was identified as Ms McKie's fingerprint. Mr Heath said he first heard of this matter when Ms Lunardi told him, at some point when she gave him statements from Mr Shields and Ms McKie, that Ms McKie had left her print at a crime scene before.[101] Ms McKie said she did not mention the previous incident to anyone on or around 6 February.[102]

6.60. Mr Stewart had no memory of hearing about the 1993 case nor did he recall giving a statement dated 3 April 1997[103] to Mr Malcolm. He explained to the Inquiry that he had eliminated many marks of police officers during his career and such an event was not memorable.[104] Mr McKenna was not aware of the link to the earlier incident at the time and may not have learned of it until 1998 or 1999.[105]

6.61. Mr Geddes had no knowledge of the previous incident[106] nor did Mr Mackenzie.[107] Mr MacPherson said it was many months after his initial identification of Y7 that he learned of the 1993 incident.[108] Mr Bruce said the 1993 incident became common knowledge "after a certain time". He became aware of it a couple of years after 1997.[109]

97 CO_1159 pdf page 3
98 See chapter 7
99 FI_0120 para 13 Inquiry Witness Statement of Mr O'Neill
100 Ms Lunardi's witness statement is on Crown Office file at CO_4010, also at CO 2579
101 FI_0013 para 265 Inquiry Witness Statement of Mr Heath
102 FI_0071 paras 63-64 Inquiry Witness Statement of Ms McKie
103 CO_2634
104 FI_0036 para 138 Inquiry Witness Statement of Mr Stewart
105 FI_0054 paras 27-28 Inquiry Witness Statement of Mr McKenna
106 FI_0031 para 97 Inquiry Witness Statement of Mr Geddes
107 FI_0046 para 129 Inquiry Witness Statement of Mr Mackenzie
108 FI_0055 para 135 Inquiry Witness Statement of Mr MacPherson
109 FI_0015 para 4 Inquiry Witness Statement of Mr Bruce

Commentary

6.62. Mr O'Neill's recollection appears to be vague but is consistent with the conclusion that at some stage the previous incident may have become known in SCRO. There were telephone calls back and forth between the police and SCRO, and it may be that information about the 1993 incident was given to SCRO but there is no evidence that it was known at the point when the mark was initially compared and identified as Ms McKie's. Some of the examiners were involved in both cases but more than three years had elapsed in between and as Mr McKenna remarked: "Police marks are eliminated day in and day out. Police often leave marks at crime scenes."[110]

6.63. I discount the second proposition in Mr Ferry's statement, namely that the mark was significant because Ms McKie had been involved in a previous incident. SCRO followed their normal procedures when first comparing the mark and it did not influence the outcome.

110 FI_0054 para 27 Inquiry Witness Statement of Mr McKenna

CHAPTER 7

TUESDAY 11 TO TUESDAY 18 FEBRUARY 1997 - CHECKING THE IDENTIFICATION OF Y7

Introduction

7.1. The evidence clearly indicates that it was not unknown for the prints of police officers and SOCOs to be identified on exhibits relevant to a criminal investigation. Indeed, in the Marion Ross murder investigation a print identified as that of the SOCO Mr Ferguson was found on one of the tape lifts that he had taken during the examination of the house.[1] From the point that she first learned of the identification of Y7 as her mark, Ms McKie denied that she had been near the bathroom. The police and SCRO found themselves in an unprecedented position in a case where, in addition to any disciplinary consequences for Ms McKie, the integrity of the fingerprint evidence was central to the murder investigation and the prosecution of Mr Asbury. Despite belief at the time in the infallibility of fingerprint evidence, a series of unique steps were taken on the instructions of the police to have the conclusion checked and re-checked by SCRO.

7.2. These checks, which were undertaken in the period between 11 and 18 February 1997, comprised:

(i) the police seeking confirmation of the identification on 11 February;

(ii) a new photograph being 'checked' on 12 February;

(iii) escalation of the issue on 14 February;

(iv) a further comparison on 17 February by two examiners with no prior involvement;

(v) a 'blind test' on 17 February; and

(vi) a further comparison on 18 February.

7.3. The end result was that the identification of Y7 was confirmed but no single individual was aware of the full level of detail and individuals were, at times, at cross-purposes both as to what was being instructed and as to the true nature of the results of the inquiries.

7.4. The broad sequence of events is consistent with two contemporaneous police reports (1) one by Mr Heath dated 14 February with an addendum down to 21 February by Detective Superintendent Scott Thomson[2] and (2) the second by Detective Chief Superintendent James Orr dated 24 February with an addendum dated 26 February[3] to which reference is made in the next chapter. Evidence that the Inquiry has obtained, including material drawn from the disciplinary investigation carried out by Chief Inspector Wilson in 1997,[4] gives a more complete picture of events at the time.

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1 Mr Ferguson 10 June page 88; see also SG_0383 and SG_0411
2 CO_1716
3 CO_1717
4 CO_0345 - This includes a number of statements. It does not have statements from some of the officers mentioned in this chapter such as Mr Ferry, Mr O'Neill or Mr Welsh.

Tuesday 11 February 1997

Immediate reactions to the identification

7.5. Once the police learned the result from Mr MacPherson, noted by Mr MacPherson as at 16:05,[5] Mr McAllister told Ms McKie who, although no longer working on the murder investigation, was in the Kilmarnock police office. Ms McKie was not surprised because she expected a mark of hers to be found on the tin, which she had handled without gloves when she and Mr Shields visited Mr Asbury's home in January.

7.6. She was "completely taken aback" to be told that the mark identified was not on the tin but on the wooden door surround of the bathroom where Miss Ross's body had been found. She thought there must be a mistake as her visits to the house had been restricted to the front porch. Perhaps, she thought, the Identification Bureau or SCRO had mixed a mark obtained from the tin with one from the murder locus.[6]

7.7. Mr McAllister was not surprised that a police officer's print had been found as this was not uncommon, but when Ms McKie immediately said she had not been in the house and there must be some mistake he phoned SCRO and asked for confirmation of the elimination of Y7. He conveyed in his call that Ms McKie's position was that the mark could not be hers and he asked the person to whom he spoke to confirm that this particular mark was hers. Mr McAllister thought "to the best of his recollection" that SCRO phoned him back slightly later that afternoon after having checked it, but certainly they confirmed that day that it was her print. In an undated statement that he had prepared himself in 1997 and in his 1997 statement for the Wilson investigation, Mr McAllister said he contacted Mr MacPherson for confirmation though by the time of the Inquiry he was not certain that it was to Mr MacPherson that he had spoken.[7] In both statements he stated that he was informed there was no possibility of an error and the elimination had been made from a set of prints supplied by Ms McKie.[8]

7.8. Mr MacPherson recalled Mr McAllister phoning and wanting to make sure the identification had been confirmed.[9] He only had one conversation with Mr McAllister who asked if he was definite in his conclusion that Y7 was left by Ms McKie. Mr MacPherson replied that he was and that it had been signed up to by four experts including himself.[10] He was not asked to recheck. Mr McAllister mentioned there might be some difficulty, but to leave it with him. He did not explain the nature of the difficulty. There was no follow up call from Mr McAllister and no further discussion with Mr MacPherson as regards checking the mark again.[11]

7.9. Mr McAllister advised Ms McKie that there was no mistake about the elimination; it had been confirmed with SCRO. She was to give a statement about the presence of her print in the house. Ms McKie conducted her conversations with him

5 PS_0002h
6 CO_2219 as referred to in FI_0071 Inquiry Witness Statement of Ms McKie
7 AG_0001, FI_0068 paras 97-98 Inquiry Witness Statement of Mr McAllister and Mr McAllister 16 June pages 25-26, 55-57
8 CO_0345 pdf page 65
9 FI_0055 para 156 Inquiry Witness Statement of Mr MacPherson
10 FI_0056 para 45 Inquiry Witness Statement (Supp.) of Mr MacPherson
11 FI_0056 para. 45 Inquiry Witness Statement (Supp.) of Mr MacPherson and CO_0345 pdf page 90

professionally but was "adamant" from the outset that she had not been inside the house and her only access to the locus had been to the front porch area.[12]

7.10. Mr Heath, who was also in Kilmarnock police station, was being kept informed. Often on investigations he had known police officers to leave fingerprints at crime scenes. Though not professional it was "not a huge deal, as such" and at this stage it was not critical.[13] He overheard Ms McKie in conversation, denying loudly that she had been in the house, and he told Mr McAllister or Detective Inspector McDonald to say to her that this was not a matter for general office discussion.[14] Ms McKie recalled Ms McDonald telling her she was not to discuss it.[15]

7.11. In Mr Heath's report of 14 February to the Divisional Commander, Chief Superintendent Cameron, he recounted that Ms McKie protested vigorously that she had not been in the house beyond the porch and that she was supported in her protestation by Mr Shields.[16]

7.12. Mr Heath was concerned at Ms McKie's strong reaction. He wondered why she was making such a fuss. He knew at the time that Ms McKie was well aware of his views on entering the locus. He had made it clear that he did not want people going into the house and she and her colleague Mr Shields were told this specifically on at least one occasion. He knew that she had been to the house and at a location only a few metres away from where her print had been found. He thought perhaps her reaction was a natural one "if someone says to you the inference is you have not done your job properly or you made a mistake" and decided that the best approach was to let Ms McKie take her two scheduled rest days and see if there was an explanation "once the whole thing settled a bit". The matter could be looked at again when she was calmer.

7.13. Ms McKie went on her rest days, 12 and 13 February. At this point she was quite concerned but not worried as she thought "the mistake would be sorted out" while she was off.[17]

7.14. Although personally he had no doubts over the veracity of the identification, Mr Heath instructed Mr McAllister to liaise with the Identification Bureau and SCRO to verify the situation. This was unprecedented. For the first time in Mr Heath's service of over 20 years he was questioning a SCRO identification. He felt he was taking a big step in raising these issues. As far as he was aware the identification of a fingerprint had never been wrong. It was not something that had ever really been questioned at all. In the years since 1997 it had become evident, he observed, that it was evidence of opinion and that opinions can differ, but at the time one of the core beliefs that "was drummed into you" was "that fingerprint evidence is infallible. No-one has the same fingerprint."[18]

12 Mr McAllister 16 June pages 26-27, 57
13 Mr Heath 9 June pages 57-58
14 Mr Heath 9 June pages 57–59 and CO_0345 pdf page 58
15 CO_2219 Mackay enquiry statement of Ms McKie
16 CO_1716 para 13
17 CO_2219 Mackay enquiry statement of Ms McKie
18 Mr Heath 9 June pages 119-121, FI_0013 para 249 Inquiry Witness Statement of Mr Heath and CO_0345 pdf page 58

12 and 13 February

7.15. Mr Heath's recollection was that over 12 and 13 February there were a number of conversations with SCRO to find out the strength of the identification.[19]

A new photograph of Y7

7.16. On 12 February a sequence of activities involved a new photograph of Y7 being taken and looked at by SCRO but there were different understandings as to what this process was and what it showed. In particular, if it was intended to be a fresh comparison, this was not how it was dealt with by SCRO.

7.17. In most instances reliance has to be placed by the Inquiry on witnesses' 1997 statements, as their recall by the time of the Inquiry was limited.[20]

The instruction

7.18. Mr Heath's report of 14 February recorded that he gave instructions that the questioned fingerprint be re-photographed in situ and re-examined,[21] although by the time of the Inquiry he did not recall this. He thought he and his colleagues might well have considered getting the mark re-photographed, and showing a photograph to Ms McKie,[22] but did not recall being involved in this particular action.[23]

7.19. Mr McAllister accepted as accurate his statement from June 1997 which recorded that Mr Heath instructed him to have Y7 re-photographed and that he contacted the Identification Bureau and arranged for this to be done and the developed film taken to SCRO "for comparison".[24]

7.20. Mr Hogg, Head of the Identification Bureau, was on holiday at the time.[25] Inspector Thomas Fraser was Operations Inspector there. He also had little recollection but thought that his June 1997 statement would be the most accurate of those he had given.[26] In it he said that on 12 February he had a telephone request from Mr Heath at Kilmarnock asking that a mark found at the scene be photographed as soon as possible. He instructed Mr Stuart Wilson to do the photography and to proceed to Strathclyde Police headquarters in Glasgow.[27] He was not told the specific purpose for the photography, but thought Mr Heath was adopting a 'belt and braces' approach to make sure it was clear in everybody's mind that the fingerprint Y7 was properly identified as that of Ms McKie. He thought "he was trying to be overt about the whole thing".[28]

7.21. Mr Wilson had first been at the scene on 9 January[29] and was one of the SOCOs present when Y7 was found.[30] He received instructions from both Mr Heath and

19 Mr Heath 9 June pages 59-60
20 In CO_0345
21 CO_1716 para 13
22 FI_0013 paras 252–253 Inquiry Witness Statement of Mr Heath
23 Mr Heath 9 June pages 62-63
24 Mr McAllister 16 June pages 28-31 and CO_0345 pdf page 65
25 FI_0034 para 38 Inquiry Witness Statement of Mr Hogg
26 FI_0085 para 2ff Inquiry Witness Statement of Mr Fraser
27 CO_0345 pdf page 98
28 FI_0085 para 6 Inquiry Witness Statement of Mr Fraser
29 FI_0019 para 4 Inquiry Witness Statement of Mr Wilson (Stuart)
30 FI_0019 para 26ff Inquiry Witness Statement of Mr Wilson (Stuart)

Mr Fraser. The instruction from Mr Heath was simply to go back to the locus and re-photograph Y7. He did not say why and gave no indication as to the type or quality of photographs he wanted taken. Mr Wilson assumed that the photograph of Y7 had not turned out or had not turned out sufficiently clear for identification purposes. Similarly, the instruction from Mr Fraser was to go back to the locus and photograph Y7, once again without explanation or further instruction.[31]

The activity at the locus, in the Identification Bureau and at SCRO

7.22. Mr Wilson attended the locus and took photographs of Y7 in the presence of PC Stevens. As instructed he drove to Pitt Street, Glasgow with the roll of film which he gave to Mr Fraser who asked him to wait. Once it was developed he and Mr Fraser took the strip of negatives and some prints across the corridor to the SCRO office.[32] Mr Fraser said that two photographs were produced.[33]

7.23. In the SCRO office the photographs and ten-print form were looked at over a period of approximately 20 minutes by three or four male fingerprint officers, who used linen testers and talked together.[34] In his 1997 statement Mr Fraser said the photographs were examined by Mr MacPherson who compared them with the elimination form for Ms McKie.[35]

7.24. Mr MacPherson in his 1997 statement said he was on duty in SCRO on 12 February when Mr Fraser asked him to confirm that a photograph he gave him, which was labelled Y7, was the same impression as the one received on 16 January also labelled Y7. This he did and "confirmed they were the same". He was also asked to provide, and did provide, a photocopy of Ms McKie's elimination form with the digit shown in red ink.[36]

7.25. By the time of the Inquiry Mr MacPherson said he was aware there was a re-photographing by the Identification Bureau in February 1997 but he did not recollect these photographs being hand-delivered to him. He did not remember comparing the new photograph with the prints "as they were just another photograph of what I had already seen".[37]

7.26. The Inquiry endeavoured unsuccessfully to discover who else was involved in this work in SCRO that day. Ms McBride had no recollection of the photographs of 12 February 1997, nor did Mr McKenna or Mr Stewart.[38]

What emerged from SCRO on 12 February

7.27. Mr Wilson said he did not learn the outcome other than possibly someone saying it was a serving officer's print. Mr Fraser put a ten-print form with one of the prints circled in red in an envelope and asked Mr Wilson to deliver it to Mr Heath in

31 FI_0019 para 44ff Inquiry Witness Statement of Mr Wilson (Stuart)
32 Mr Wilson 17 June pages 109-110, FI_0019 paras 44-55 Inquiry Witness Statement of Mr Wilson (Stuart) and CO_2039 Mackay enquiry statement of Mr Fraser
33 CO_0345 pdf page 98
34 Mr Wilson 17 June pages 110-111
35 CO_0345 pdf page 98
36 CO_0345 pdf pages 89-91
37 Mr MacPherson 27 October page 97–98 and FI_0055 paras 156-157 Inquiry Witness Statement of Mr MacPherson
38 FI_0039 para 91 Inquiry Witness Statement of Ms McBride, FI_0054 paras 40-42 Inquiry Witness Statement of Mr McKenna and Mr Stewart 5 November pages 101–103

Kilmarnock. The photographs were also in the envelope. Mr Wilson said he took the envelope to Kilmarnock[39] although Mr Heath, whose notebook showed he was heavily involved in conducting job interviews that day,[40] said in a statement to the Mackay enquiry he had no recollection of receiving such an envelope.[41]

7.28. What Mr MacPherson had done was only to confirm that the new photograph was of the same mark as the photograph he had used in his comparison, and then to indicate the relevant matching print on the form.[42] He did not carry out a further fingerprint comparison. That was not appreciated by others at the time. Mr Fraser said, in his 1997 statement, that Mr MacPherson confirmed that the mark Y7 corresponded with the left thumb on the elimination form.[43]

The 12 February photographs

7.29. The photographs taken on 12 February were not handled in the normal way. They do not appear to have been accompanied by a form 13B.

7.30. Normally photographic images would be retained in SCRO. On this occasion they were taken away, and delivered to the police at Kilmarnock.

7.31. On 12 June 2006 Mr Hogg asked Mr Thurley to go through various photographic envelopes that were scheduled for routine destruction to look out any of public interest and Mr Thurley found negatives of these photographs.[44] Mr Hogg reported this to Mr Malcolm who took possession of the negatives, and, as Mr Hogg understood, contacted the Crown.[45] Mr Hogg had no knowledge of a visit to the scene by Mr Wilson on 12 February 1997 and until 12 June 2006 he had no knowledge of the existence of the negatives.[46]

7.32. The Inquiry obtained the envelope of negatives from Strathclyde Police, which included a report from Mr Malcolm addressed to the Deputy Crown Agent in which he referred to telephone discussions on 12 and 13 June 2006 with the Crown Agent and the Deputy Crown Agent respectively. The Inquiry had the negatives developed.[47]

13 February

7.33. Mr Heath, in his 1997 statement, said that on 12 or 13 February Mr McAllister told him that the identification of Ms McKie's fingerprint "was not in doubt".[48] He

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39 Mr Fraser CO_0345 pdf page 99, Mr Wilson 17 June page 110 and FI_0019 para 55 Inquiry Witness Statement of Mr Wilson (Stuart)
40 FI_0013 para 252 Inquiry Witness Statement of Mr Heath
41 CO_1096 Mackay enquiry statement of Mr Heath
42 CO_0345 pdf pages 90-91
43 CO_0345 pdf page 99
44 The 'photography assignment details' that accompanied the negatives ST_0066, suggested that the negatives were first developed on 13 February 1997. In oral evidence Mr Wilson thought that this might be a clerical error as he was certain that they were developed and taken to SCRO on the same day as he took the photographs, 12 February (17 June, page 112). Mr Fraser explained that it could simply be that they were filed next day. FI_0085 para 16-17 Inquiry Witness Statement of Mr Fraser
45 FI_0034 paras 70-71 Inquiry Witness Statement of Mr Hogg
46 ST_0065 - copy statement from Mr Hogg attached to report to Deputy Crown Agent dated 14 June 2006
47 The envelope was accompanied by ST_0064, a report from Mr Malcolm addressed to the Deputy Crown Agent, ST_0065, statements from Mr Hogg and Mr Thurley, and ST_0066, a cover sheet 'Photography Assignment Details'.
48 CO_0345 pdf page 59

could not recall the specific conversations but he was sure he was told there were numerous points of identification.[49]

7.34. His recollection was that he was in Glasgow on other business on 13 February and he called in to the Identification Bureau and SCRO[50] to ask "are we absolutely certain about this?" He could not recall whom he met.[51]

7.35. It was a difficult position to be in but he thought the issue might affect Ms McKie's career and she was a member of his staff, so he wanted to make sure that the position was totally secure. He was also concerned to maintain the professional relationship with the SCRO staff since, unusually, instead of taking their word for it, he was questioning a print. He knew there were verification procedures in SCRO and he was conscious of professional courtesies in questioning their work, but he was aware of the paramount importance of fingerprints to the case and he also wanted to be very sure because he was going to be challenging one of his officers about the matter on her return.[52]

7.36. SCRO confirmed that the print was hers. "The print had been rechecked."[53] Mr Heath said that the issue would have been among the matters he discussed with Mr Orr, Deputy Chief Superintendent, that day and that he then discussed it with Mr Malcolm, Detective Superintendent.[54] In his report of 14 February, with reference to his instruction that the mark be re-photographed and re-examined, he wrote "on 12 February this further examination was carried out and on 13 February the impression was confirmed" as being the left thumb of Ms McKie.[55]

Senior staff in SCRO

7.37. It is not clear when the matter came to the attention of senior staff within SCRO. Mr O'Neill, Head of the Fingerprint Bureau, did not have a clear recollection by the time of the Inquiry but accepted as broadly correct his statement to the Mackay enquiry.[56] In this he said that Mr MacPherson or Mr Dunbar told him about an identification of a mark as a police officer's. He thought that he had immediately told Mr Ferry, Head of SCRO, and recalled that soon after he did so he had a telephone call with Mr Heath who was looking for reassurance because the officer was disputing the mark as being hers. He had told Mr Heath he had total faith in his staff and if they said the mark was made by her then as far as Mr O'Neill was concerned this would be the case. He told the Inquiry that although police officers are trained to avoid leaving fingerprints they do leave prints from time to time and accordingly, even if he did know about the identification of Y7 at this point he would not have placed any great importance on this fact.[57]

7.38. Although the date cannot be determined it seems possible that this reassurance was sought during the period that Mr Heath was looking into the matter which was over 12 and 13 February, and before he referred it to senior officers.

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49 FI_0013 para 248 Inquiry Witness Statement of Mr Heath
50 AC_0004 pdf page 26
51 FI_0013 paras 254-255 Inquiry Witness Statement of Mr Heath
52 Mr Heath 9 June pages 60-63
53 FI_0013 para 257 Inquiry Witness Statement of Mr Heath
54 FI_0013 para 258 Inquiry Witness Statement of Mr Heath
55 CO_1716 para 14
56 CO_1156 Mackay enquiry statement of Mr O'Neill
57 FI_0120 paras 12-14 Inquiry Witness Statement of Mr O'Neill

7.39. Mr Ferry was deceased by the time of the Inquiry. As mentioned, he provided a statement to the Mackay enquiry.[58] He also gave evidence to the Justice 1 Committee inquiry at the Scottish Parliament, during which he indicated that he had not had an opportunity to check his Mackay enquiry statement for accuracy.[59]

7.40. In his Mackay enquiry statement Mr Ferry is recorded as saying that he would have been updated as to the progress of the crime scene marks in relation to Miss Ross's murder at his Monday morning meetings with his senior team and that he would have communicated the updates to the Assistant Chief Constable Crime, Mr Welsh,[60] at a subsequent meeting. He is also noted as saying that Mr O'Neill told him of the identification of a mark as that of Ms McKie.

7.41. In his evidence to the Parliament he indicated that his recollection was that he was informed that a mark had been identified as that of a police officer and she had denied it. On the day in question he was attending a meeting so he asked the expert who told him this to have it checked again just in case there was any dubiety. When he got back from the meeting the expert told him another three experts had looked at it and it was definitely the person's but she was still denying it. He then went to see the Assistant Chief Constable Crime and because of the gravity of the matter – if it was her fingerprint she was telling lies – the Assistant Chief Constable asked Mr Ferry to get another three experts to check it. He did that and got the same result.[61]

7.42. It is known that Mr Ferry was not in the office on Monday 17 February[62] and that he went to a SCRO management conference in Peebles on 18 February and arrived there after it started,[63] but it is difficult to date Mr Ferry's account and assess it with reference to the evidence that follows.

Friday 14 February

7.43. Ms McKie returned from her rest days and went to see Mr Heath, before 8:00 on 14 February, to ask if the fingerprint identification had been resolved. This was the first time he had spoken directly with her about the matter. He told her the mark had been verified as hers. Ms McKie said this was not possible and was emphatic that she had not been in the house. Shortly afterwards they had a second

58 CO_1159 Mackay enquiry statement of Mr Ferry. His account refers to February 1997 but not specific dates.
59 Scottish Parliament Justice 1 Committee Official Report 23 May 2006 Col 3123ff
60 In his evidence to the Justice 1 Committee Inquiry he explained that he was responsible to Mr Welsh on a day-to-day basis, referring to one of the SCRO committees. Scottish Parliament Justice 1 Committee Official Report 23 May 2006 Col 3139
61 Scottish Parliament Justice 1 Committee Official Report, 23 May 2006, Col 3139
62 FI_0120 para 28 Inquiry Witness Statement of Mr O'Neill
63 On 18 February there was a SCRO corporate event for senior managers at Peebles Hydro. It started at noon and continued for a full 24 hours - SG_0088 pdf page 5.
Prior to taking up post as Detective Superintendent in SCRO on 3 March 1997 Mr Gorman attended the Peebles event and was reported in his statement to the Mackay enquiry as saying that he could recall Mr Ferry arriving late at the event because he had been dealing with the McKie case. His post included deputising for the Chief Superintendent (Mr Ferry). He said he himself had no involvement in the case nor was aware of any difficulty surrounding it until Ms McKie's trial in 1999. CO_2038 Mackay enquiry statement of Mr Gorman.

conversation, in the presence of Mr Shields, when Ms McKie again denied having been in the house and was backed up by Mr Shields.[64]

7.44. Mr Heath thought a visit to the locus might help in terms of memory. He was trying to be "really fair" because of two concerns: the case, and the situation for two of his officers which was becoming serious. He arranged for the mark to be viewed that morning by Mr McAllister, Ms McKie, Mr Shields and himself.[65] Ms McKie's recollection was that Mr Heath intimated that he intended to show her and the others the mark at the locus and that she said she did not need to be shown it as it was not hers. She was "becoming extremely distressed".[66]

7.45. At the house Ms McKie made it clear to Mr Heath and Mr McAllister that this was the first time she had been near the bathroom where Miss Ross's body was found. She was confused in relation to the mark being said to be her left thumb print as her impression was that from its position and the shape of the door-frame it would have been very difficult for it to have been a left thumb and she also thought it could only have been made after the door had been taken off. She explained this to Mr Heath and the others though she thought they did not seem interested.[67]

7.46. Mr Heath said nothing altered after the visit. Ms McKie repeated her denial and was supported by Mr Shields.[68] She said again that she had been at the front porch but not in the house.[69]

7.47. Mr Heath felt that he had done all he could and that the matter now had to be dealt with formally. On return to the police station he placed an instruction through the HOLMES system[70] for Ms McKie and Mr Shields to provide witness statements. It was important that there was an audit trail.[71] He compiled a report for Mr Cameron, the Divisional Commander,[72] and had a meeting with him and Mr Thomson, who was Deputy Divisional Commander, during which Chief Superintendent Norman Gibb, Head of Complaints and Discipline, was contacted by phone.[73]

7.48. In Mr Heath's report he wrote: "Unless a serious mistake has been made *twice* by Identification Bureau and SCRO fingerprint officers there is overwhelming legally accepted scientific evidence that [Ms McKie] has been in the bathroom area of the house … The Identification Bureau and SCRO staff are trained professionals who pride themselves in the accuracy of their work and it is offensive to suggest that they have made a mistake particularly on an identification which has been checked *twice*. [I] have basically had to offer [my] apologies to both of these departments in requesting that the check be carried out for a second time. [Ms McKie] remains emphatic that she had not been in the interior …before or after the murder and her stance in relation to the evidence against David Asbury has serious implications

64 Mr Heath 9 June page 64, FI_0071 para 69 Inquiry Witness Statement of Ms McKie, FI_0013 para 260 Inquiry Witness Statement of Mr Heath and CO_1716
65 Mr Heath 9 June page 64
66 CO_2219 Mackay enquiry statement of Ms McKie
67 FI_0071 para 70 Inquiry Witness Statement of Ms McKie
68 Mr Heath 9 June page 65
69 FI_0068 para 99 Inquiry Witness Statement of Mr McAllister
70 CO_1698
71 Mr Heath 9 June pages 65–68. Ms McKie's statement provided that day is CO_0286.
72 CO_1716
73 Mr Heath 9 June pages 67-68

for the case particularly since her fingerprint is found near the body and her non-acceptance of the identification questions the professionalism of the whole enquiry and in particular SCRO and IB" (emphasis added). Mr Heath's references to "twice" reflect the fact that the police understood that a second comparison had been carried out by SCRO on 12 February. His report proceeds to mention that Mr Shields was emphatic that Ms McKie did not enter when he was with her and if he was not mistaken then the only possible scenario was that Ms McKie visited the locus herself between 9 and 14 January. He concluded that the integrity of Ms McKie had been seriously questioned and there were grave concerns about her continuing to work in the office while the murder investigation continued.

7.49. It was decided that Ms McKie's absence management would be overseen by Mr Thomson and the investigation into the presence of her print in the house passed to Mr Malcolm.

7.50. Mr Heath said that at this meeting the three senior officers decided to keep the matter within the division and not to take formal disciplinary steps at this stage. The instruction he received from them was to ask Ms McKie to report for duty, but when she could not be reached by phone it was decided instead that Mr Thomson would see her on Monday 17 February.[74] Mr Thomson was deceased by the time of the Inquiry but according to his statement to the Mackay enquiry his meeting with her was in order to establish "if a resolution could be found to the issue".[75]

Saturday 15 February

7.51. Mr Heath recalled Ms McKie phoning him. She was convinced it was a terrible mistake and wanted the fingerprints and eliminations checked again. He told her she had to report to Mr Thomson on 17 February and to discuss these matters with Mr Thomson.[76]

7.52. Ms McKie described this weekend as "a nightmare". She kept hoping for a phone call to say that a mistake had been made.[77]

Commentary – 11 - 16 February

Steps taken by Mr Heath

7.53. The process reflects well on Mr Heath. He was perceptive and quick to respond when he noted Ms McKie's reaction to the news about her mark being found at the scene. He did not accept SCRO's assurance on 11 February at face value but instructed that the mark be photographed again and a re-examination carried out, despite never having questioned a fingerprint before. The situation was embarrassing as these were officers he used in investigations, and he took the additional step of visiting both the identification and the fingerprint bureaux to check the situation first hand and as a professional courtesy. He saw that Ms McKie's career was on the line, and that the murder investigation was in jeopardy. But he was assured that SCRO were certain. By the time he reported the matter into the audit system and to his superiors he understood that the mark had been checked twice.

74 FI_0013 para 270 Inquiry Witness Statement of Mr Heath
75 CO_2372 Mackay enquiry statement of Mr Thomson
76 FI_0013 para 274 Inquiry Witness Statement of Mr Heath
77 CO_2219 Mackay enquiry statement of Ms McKie

7.54. From this point onwards decisions as regards further steps were taken by more senior police officers.

Steps taken by SCRO

7.55. There was no 'checking' of the result on 11 February. Mr MacPherson was confident of SCRO's finding on Y7 and based his assurance to Mr McAllister on these factors: four examiners had agreed, and the print form was Ms McKie's. Mr MacPherson also knew that he had applied the 16-point standard and assured Mr McAllister there was no mistake. The police appear to have recognised that the check that day was merely confirmation of what had already been done.

7.56. A confirmatory exercise was carried out on 12 February. It does not appear that, even in 1997 when statements were being made to Mr Wilson, the purpose of the instruction was entirely clear to those to whom it was communicated and there was no evidence of an instruction being conveyed direct to SCRO to undertake a specific task.

7.57. As a result, by 13 February a misunderstanding had entered the process. Mr Heath had instructed re-photographing and a re-examination. His understanding by close on 13 February was that the comparison had been re-checked. In fact, all that had been checked was that the photograph was definitely of the mark in question and that the print form was definitely Ms McKie's. There had been no re-examination. The 'confirmation' of the identification was still based upon the decision taken by Mr MacPherson and three checkers on 10/11 February.

7.58. The instruction relayed to the Identification Bureau had either been lost in the onwards communication to SCRO or SCRO did not recognise its nature. Mr MacPherson was confident in the result phoned out, which was based on an examination by himself and three others to the 16-point standard. On 12 February he checked there was no mistake with the items examined – it was Y7 and it was Ms McKie's form. Fingerprint examiners both then and now are trained that they can have 100% certainty in their decisions and, in consequence, Mr MacPherson's checks were limited to practicalities. Mr Heath raised the matter with SCRO in person. He left reassured, but SCRO and the police were not at one.

Monday 17 February

Ms McKie's meeting with Mr Thomson

7.59. Ms McKie was interviewed by Mr Thomson and once again she said a mistake had been made.[78] In his statement to the Mackay enquiry, Mr Thomson is recorded as saying that with regard to the second photograph of Y7 "that had been also identified as hers" she alluded to a cover up by the Identification Bureau for an initial mistake made by them. She was quite upset during the interview with comments such as "she would not make such a fundamental blunder." He indicated in the statement that he "was not necessarily being sympathetic towards her point of view". He tried to reason with her saying that fingerprint evidence was infallible and no two fingerprints had ever been found to be the same.[79]

7.60. Ms McKie requested that she be permitted to witness the taking of new photographs of the mark and their subsequent comparison with her prints. This

78 Ms McKie referred to her statement CO_2219 in relation to this interview.
79 CO_2372 Mackay enquiry statement of Mr Thomson

was because she had never seen fingerprints being compared for the purposes of establishing identification and also she was still convinced that the mark was not hers.[80]

7.61. Mr Thomson's statement to the Mackay enquiry said it had been agreed at the meeting with Mr Heath and Mr Cameron on Friday 14 February that, if no resolution could be reached, they would go through the whole process of photographing the mark and demonstrating the identification process to Ms McKie in her presence.

7.62. Arrangements were made for this to be done on 18 February. He contacted Mr O'Neill and requested that he facilitate the demonstration.[81]

Police requests to SCRO

7.63. Mr O'Neill's recollection was that his involvement was over two days beginning the day before the SCRO Senior Management conference in Peebles. He took a call late afternoon[82] from the Deputy Divisional Commander in Kilmarnock (i.e. Mr Thomson) who asked him to arrange two things. The first was that Ms McKie would come to SCRO next day with a copy of her prints and a photograph of Y7 and stand beside a fingerprint officer while the officer checked whether Y7 was made by her. The second was that the identification of Y7 be checked again.

7.64. The first request was "highly irregular" and at first he refused it, acceding reluctantly when the higher ranking officer insisted upon it. He agreed to the second request and said he would phone back the next day with the results. When Mr Thomson demanded that the results be phoned back the same day he agreed to do so.

7.65. His recollection was that the proposal was also that a new set of prints and a new photograph would be taken and that it would be the comparison of those items Ms McKie would watch, but he could not remember if he learned this detail during his conversation with Mr Thomson or next day in discussion with Mr Ferry.[83]

SCRO activity on 17 February

7.66. There was therefore a requirement that SCRO check the identification of Y7 that day. Mr O'Neill said that after the call he asked Mr Dunbar to check the identification. How the mark was checked was up to Mr Dunbar. He could not remember whether Mr Mackenzie was also involved in the discussion. He could not remember any discussion about how many officers should check the mark but the number might have been discussed.[84]

7.67. Mr Mackenzie as Assistant Chief Fingerprint Officer was the most senior fingerprint officer in the bureau at the time[85] and Mr Dunbar was the Quality Assurance Officer and Mr Mackenzie's deputy.[86] If no principal fingerprint officer was available due to

80 FI_0071 para 72 Inquiry Witness Statement of Ms McKie
81 CO_2372 Mackay enquiry statement of Mr Thomson
82 CO_1156 Mackay enquiry statement of Mr O'Neill
83 FI_0120 paras 15-22 Inquiry Witness Statement of Mr O'Neill
84 FI_0120 paras 23-34 Inquiry Witness Statement of Mr O'Neill
85 Mr Mackenzie 1 October page 100
86 FI_0120 para 23 Inquiry Witness Statement of Mr O'Neill and FI_0053 para 14 Inquiry Witness Statement of Mr Dunbar

shift patterns they would when requested do final checks on comparisons, and Mr Dunbar had a role to play in checking work at various stages.[87]

7.68. Mr Mackenzie said he had a very clear recollection of events.[88] He timed the phone call Mr O'Neill received as around 4pm.[89]

7.69. Two steps were taken within SCRO that evening. First Mr Mackenzie and Mr Dunbar compared Y7 with Ms McKie's prints, and second there was what came to be known as the "blind comparison", "blind test"[90] or "blind trial".[91]

The basis of the re-checking on 17 and 18 February

7.70. The Y7 result that had been telephoned out to the police was one made by four examiners as an 'identification' to the 16-point standard. At that stage Ms McKie was no more than an individual whose prints required to be 'eliminated' from the investigation. An 'elimination' conclusion could be reached by examiners without finding 16 points.[92] With the exception of Mr Halliday, the additional examiners who participated in the re-checking exercises on 17 and 18 February approached it as one requiring at most an 'elimination' and did not find 16 points. At most, therefore, the re-checking exercises confirmed an 'elimination' but no one outside SCRO was alerted to this distinction.

Mr Mackenzie's and Mr Dunbar's comparisons of Y7 on 17 February

7.71. Mr Dunbar said that he and Mr Mackenzie were requested by Mr O'Neill to examine the mark independently against an elimination form. He knew that the identity of the mark had already been reported to the police as belonging to a police officer and SCRO was being asked to re-examine it. They were not given a specific instruction whether to eliminate or identify the mark, but were to say if they agreed as to the identity of it.[93]

7.72. He discussed the matter with Mr Mackenzie because this was an unusual request. Even though they had been asked to do such checks before, in this case four officers had signed as to the elimination of the mark. He and Mr Mackenzie agreed to discuss their findings after they had both independently checked the mark.[94]

7.73. Mr Mackenzie was aware the request came through Mr O'Neill. They did the work some time between 4pm and 6pm.[95] He recalled that Mr Dunbar got the material from the file and was the first to do a comparison. The material was then passed to Mr Mackenzie. He knew Y7 had been eliminated as the left thumb print of a police officer[96] but was not at the time aware that the officer was disputing that it was her mark.[97]

87 FI_0046 paras 96–97 Inquiry Witness Statement of Mr Mackenzie
88 Mr Mackenzie 1 October page 108
89 Mr Mackenzie 30 September page 38
90 Mr Foley 23 June page 174
91 FI_0053 para 123 Inquiry Witness Statement of Mr Dunbar
92 See chapter 32 para 30ff
93 FI_0053 paras 102–103 Inquiry Witness Statement of Mr Dunbar
94 FI_0053 paras 105-106 Inquiry Witness Statement of Mr Dunbar
95 FI_0046 paras 118–121 Inquiry Witness Statement of Mr Mackenzie
96 FI_0046 para 124 Inquiry Witness Statement of Mr Mackenzie
97 Mr Mackenzie 1 October page 80

7.74. Mr Dunbar and Mr Mackenzie both confirmed the mark as having been made by the left thumb of Ms McKie. Mr Mackenzie said they each reported their findings to Mr O'Neill and he understood that at this juncture Mr O'Neill informed the Divisional Commander at Kilmarnock that the comparison had been done again and that the conclusion was that the elimination was correct as being Ms McKie.[98] Mr Dunbar recalled that they discussed their findings in front of Mr O'Neill and the information was conveyed to Mr Ferry that day.[99]

7.75. It is not clear whether Mr Ferry was informed that day. In his evidence to the Parliament he said that when he got back from his meeting he was informed that another three experts had looked at the mark.[100] It may be that he was referring to the discussion that he had next morning, 18 February.

7.76. Mr Mackenzie said he did not discuss his findings with any other SCRO officers. They had done their own comparison and come to their own conclusions.[101]

7.77. Mr Dunbar recorded in his diary that night: "Mark from UC01050197 Imp Y7 Cop - Elim On to 7.40." He explained that it was unusual for him to be there until that time as he did not work shifts.[102]

7.78. Mr O'Neill recounted that later in the day he was told "the result of the check" by Mr Dunbar. He phoned the Deputy Divisional Commander (Mr Thomson) with it.[103] Mr Thomson's statement to the Mackay enquiry concerning 17 February does not mention this; it is confined to his meeting with Ms McKie and the call he made to Mr O'Neill about arrangements for the next day.[104] Mr Mackenzie's recollection was that Mr O'Neill then went home, which would be soon after 6pm. That was the end of this part of the proceedings, the identification had been confirmed to Kilmarnock at that point.[105]

The bases for the conclusions

Mr Dunbar

7.79. Mr Dunbar approached the piece of work as a quality assurance exercise, essentially on a non-numeric basis.[106] As he was being asked as Quality Assurance Officer to ensure that the correct information had gone out of the office, he knew the result but he nevertheless analysed the mark at full arms' length.[107]

7.80. The mark was quite complex. He described seeing a fault line in it and trying to reconcile the top, where there was movement or distortion, with the bottom. He used glass and also the comparator to see if it would assist with the area above the line, which it did not. There was "an area of concern in the mark. [In] this area was the presence of possible movement or distortion in the mark or potentially a double touch. Everything below this area I considered to be identical and in

98 Mr Mackenzie 30 September page 46
99 FI_0053 paras 117,122 Inquiry Witness Statement of Mr Dunbar
100 Scottish Parliament Justice 1 Committee Official Report 23 May 2006 Col 3139
101 Mr Mackenzie 2 October page 125
102 FI_0053 para 121 Inquiry Witness Statement of Mr Dunbar and TC_0023
103 FI_0120 para 35 Inquiry Witness Statement of Mr O'Neill
104 CO_2372 Mackay enquiry statement of Mr Thomson
105 Mr Mackenzie 1 October pages 93-94
106 FI_0053 para 107 Inquiry Witness Statement of Mr Dunbar
107 Mr Dunbar 6 October page 64

sequence and agreement with the ridge characteristics on the elimination form of Shirley Cardwell. Although I could not account for certain characteristics in the top half of the mark against that form there was far too much detail in the bottom of the mark in sequence and agreement for it not to be this individual. There has always got to be a reason for things not to be in agreement and I was satisfied that the movement and distortion in that area of the mark meant I could not see anything from that area and that that was sufficient justification as to why there were disagreements in that part of the mark and the elimination form."[108]

7.81. The elimination form could have been clearer as it was not rolled enough or tipped enough. He would like to have seen more detail higher up on the form and would have preferred to have seen another form to compare. Despite these shortcomings: "there was nothing to suggest, using the elimination form I had at the time on 17 February, that this was not the individual and indeed there was far too much information to suggest that it was."[109]

7.82. Mr Dunbar said he eliminated the mark as that of the officer. As there was no magic number when an expert would be satisfied, he was not looking in particular for 16 characteristics in sequence and agreement. That was used only for court purposes. His witness statement is contradictory in that one paragraph said that he found at least ten characteristics, while in another he said that he did not know the number that he found.[110] In oral evidence he said that he could not recall exactly the number of characteristics he found but it was certainly less than 16.[111]

Mr Mackenzie

7.83. The examination was of an actual size photo of Y7 and an elimination print form for Ms McKie. The prints were taken by means of ink on paper, as this was just before the introduction of Livescan.[112] The photograph the Inquiry had[113] was of similar quality to the image he saw that day. By the time of the Inquiry he could not recollect if it had writing on the back.[114] He used two magnifying glasses in a binocular manner, augmented by the comparator.[115]

7.84. His initial assessment indicated that the mark was a thumb and he thought the photograph had a number 6 on it which would denote a left thumb so he was looking at left thumb prints on the elimination form.[116]

7.85. On the form the rolled impression was smudged and he chose to work with the plain impression which was suitable for comparison.[117] He had no issue with the quality of the mark for examination purposes; he was "totally satisfied with the quality of the photograph taken by Strathclyde Police".[118]

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108 FI_0053 paras 113-114, 118, 122 Inquiry Witness Statement of Mr Dunbar
109 FI_0053 paras 119-120 Inquiry Witness Statement of Mr Dunbar
110 FI_0053 paras 112, 117 Inquiry Witness Statement of Mr Dunbar
111 Mr Dunbar 6 October page 63
112 Mr Mackenzie 30 September pages 39-40
113 PS_0002h
114 FI_0046 para 293 Inquiry Witness Statement of Mr Mackenzie
115 Mr Mackenzie 30 September pages 42-43
116 Mr Mackenzie 30 September page 41
117 Mr Mackenzie 30 September page 42 and Mr Mackenzie 1 October pages 91, 97-98
118 Mr Mackenzie 1 October page 91

7.86. His conclusion made that day, recorded on the form, within time constraints, was that he was satisfied that Y7 was eliminated as the left thumb print of Ms McKie. He explained that normally an expert should not, and would not, be constrained by time but the circumstances that day demanded a result being sent back to the Divisional Commander at Kilmarnock.[119]

7.87. This was one of "two occasions in [his] career when [he had] actually looked at very complex marks".[120] Mark Y7 was significantly distorted due to major movement. There was a fault line from right to left dissecting the mark.[121] His "initial assessment was that there was major movement and disruption".[122] His conclusion was that the mark "was at least more than one piece and from the orientation and the deposition … [he] was satisfied that there was major disruption, particularly in the top half".[123]

7.88. There were characteristics available in the top half but based on the material available to him that day he was not able to make a comparison of this area, and his assessment was made in the area below the fault line.[124] He was "satisfied that the top half of the print would have been made by the same individual".[125]

7.89. Mr Mackenzie said he saw what came to be known as the Rosetta characteristic, an unusual feature in the upper part of the mark.[126] It was a difference between mark and print in the material he had available to him but he thought it could be explained by movement or some kind of distortion.[127]

7.90. Where an examiner observed differences between a mark and a print he could get enlargements and another option was to use the comparator. On this occasion he did not ask for enlargements. "The window for this comparison was between 4.00 and 6.00 on a Monday night and there was no need for me to ask for enlargements because I had sufficient detail present to come to a conclusion on my comparison."[128]

7.91. During this examination Mr Mackenzie saw "in the vicinity of" ten or eleven points in sequence and agreement.[129] He was approaching it as an elimination and not looking to the 16-point standard for an identification.[130] But "my analysis of the mark against that individual finger was it was the same person. So I would not differentiate between an elimination and an identification. They are both the same thing."[131]

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119 Mr Mackenzie 30 September page 43
120 Mr Mackenzie 1 October page 116 (the other being the McNamee mark which he examined for the Metropolitan Police)
121 FI_0046 paras 125-126 Inquiry Witness Statement of Mr Mackenzie
122 Mr Mackenzie 2 October page 79
123 Mr Mackenzie 2 October page 96
124 Mr Mackenzie 30 September page 122ff and FI_0046 para 126 Inquiry Witness Statement of Mr Mackenzie
125 Mr Mackenzie 1 October page 92
126 For evidence on the Rosetta see chapter 25
127 Mr Mackenzie 2 October page 97
128 Mr Mackenzie 2 October pages 99-101
129 Mr Mackenzie 30 September page 45
130 Mr Mackenzie 1 October page 80ff and FI_0046 para 124 Inquiry Witness Statement of Mr Mackenzie
131 Mr Mackenzie 1 October pages 81-86

The 'blind test'

The background

7.92. A further exercise was undertaken on 17 February. Mr Mackenzie and Mr Dunbar took different positions as regards its background and purpose. Mr Mackenzie recalled that the opportunity had been taken to carry out a form of training exercise, whereas Mr Dunbar recalled that it was something that they were instructed by senior officers to do in face of argument to the contrary from Mr Dunbar.[132] There were also differences of recollection among the examiners involved regarding the question that they were being asked to address.

7.93. Be that as it may, the more critical point is that it is undoubtedly the case that the exercise was not a fingerprint comparison carried out in accordance with normal practice. The examiners were simply presented with mark and print displayed on a comparator machine. The comparator machine may display only part of it and the examiners were not afforded an opportunity to carry out a full analysis of the mark nor to compare mark and print using glasses at their desk or anywhere else.

7.94. Mr Mackenzie considered it was "a blind test, or *said to be* a blind test"[133] (emphasis added). His evidence was that, although there had been no particular discussion in relation to Y7, it had been noted as a complex mark and it was at that time deemed a good example which could be used as training material for a blind test.[134] It was an opportunity to get other experts involved "purely as a test scenario". He considered it to be a training exercise, a test of experts' skills using a complex mark.[135] It had "nothing to do with in any way the earlier information that had been imparted back to Kilmarnock police office".[136] "It was a different scenario altogether."[137] The exercise fitted within the context of the development of competency testing. Although SCRO had not done blind tests before, staff were encouraged to bring forward complex marks for training purposes. History had shown that "if any mark was suitable for a test then this mark was."[138]

7.95. From memory there was only himself, Mr O'Neill and Mr Dunbar in the bureau that evening that would be party to starting the exercise. He thought he would have had an input in suggesting this was a good opportunity for doing such an exercise because he had been instrumental in bringing in competency tests and auditing and he knew "from the first minute, the first assessment of that mark, how complex it was".[139]

7.96. Looking back on it, he took issue with any suggestion there might have been in the intervening years that he had set up a test because he had doubts about the identification he had imparted to Mr O'Neill. He had not. "If I had any doubts in my mind, I would not have been setting myself up for a different decision."[140]

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132 Mr Dunbar 6 October pages 75-80
133 Mr Mackenzie 1 October pages 89, 93
134 FI_0046 paras 136 Inquiry Witness Statement of Mr Mackenzie
135 Mr Mackenzie 1 October page 87ff and FI_0046 paras 136-137 Inquiry Witness Statement of Mr Mackenzie
136 Mr Mackenzie 1 October pages 93, 95
137 Mr Mackenzie 6 October page 47ff
138 Mr Mackenzie 1 October pages 90-96
139 Mr Mackenzie 1 October page 94-96
140 Mr Mackenzie 1 October page 95

7.97. Mr Dunbar was to administer the exercise. It was a one-off test opportunity and there were never any thoughts in his mind that the whole of the bureau would do it.[141]

7.98. He was not aware that "a serious investigation into Shirley McKie was on that day". "The day that test was carried out there was a query from the Kilmarnock police office who asked for another comparison and that comparison was done by myself and Alan Dunbar and that result was then imparted to Kilmarnock police office."[142]

7.99. Mr Mackenzie was not aware of Mr O'Neill having suggested there be a blind test or of Mr Dunbar having opposition to it.[143]

7.100. Mr Dunbar said the exercise[144] was instructed by Mr O'Neill or Mr Ferry.[145] Mr Mackenzie had told the Inquiry he was nearly certain Mr Ferry was not present in the bureau at the time[146] but Mr Dunbar explained that he was not claiming that Mr Ferry was present, rather that he believed the instruction came from there.[147]

7.101. Mr Dunbar said he voiced opposition to the proposed exercise because by then six fingerprint officers (the four who had initialled the photograph, plus himself and Mr Mackenzie) had made a comparison and were of the same view.[148] (He did not know at the time anything about Mr Geddes being "another signature".[149]) He saw no relevance to the particular case. He recalled commenting to Mr O'Neill with Mr Mackenzie present that he was not happy about it for these reasons "but it became very clear that we were going to go ahead with it come hell or high water", and it ended up as an instruction to him to carry it out.[150]

7.102. Six people had confirmed the identification "and then we were asked to go and put it in front of others. I still fail to grasp the true meaning behind it." So it left him believing that the only reason it was being done was because the individual concerned was a police officer.[151]

7.103. The instruction was to have as many people look at the mark as possible without telling anyone of the details, namely withholding the origin of the mark or the identity of the known prints.[152]

7.104. In his evidence to the Inquiry Mr O'Neill said he was not familiar with the term 'blind test' and had not instructed one. He had asked Mr Dunbar to have the identification checked and remembered that at some point that day the comparator screen was set up in Mr Ferry's room, he assumed so that fingerprint officers checking the mark could work in quiet surroundings.[153] In his Mackay enquiry statement

141 Mr Mackenzie 6 October page 3
142 Mr Mackenzie 6 October pages 3-4
143 Mr Mackenzie 1 October pages 91-94
144 Mr Dunbar 6 October page 75ff and FI_0053 Inquiry Witness Statement of Mr Dunbar
145 FI_0053 para 123 Inquiry Witness Statement of Mr Dunbar
146 Mr Mackenzie 1 October pages 91-94
147 Mr Dunbar 6 October page 76
148 FI_0053 paras 125-127 and 132 Inquiry Witness Statement of Mr Dunbar
149 Mr Dunbar 6 October page 77
150 Mr Dunbar 6 October page 77 and FI_0053 para 127 Inquiry Witness Statement of Mr Dunbar
151 Mr Dunbar 6 October pages 77-78
152 FI_0053 para 124 Inquiry Witness Statement of Mr Dunbar
153 FI_0120 paras 27–34 Inquiry Witness Statement of Mr O'Neill

he is recorded as saying "In view of the discussion I had held with the Deputy Commander I wanted to ensure that the mark and the elimination was that of [Ms McKie]. As I wanted to have it double checked, I told Alan Dunbar to have this done immediately. Alan Dunbar went off and set up the comparator for this check to be made. I think this was set up in the Chief Superintendent's office."[154]

7.105. In his evidence to the Justice 1 Committee Mr Ferry appeared to say that he gave authority for a blind test but did not specifically authorise it. "The head of department…would be responsible for that."[155]

7.106. At this stage, Mr O'Neill was aware of the proposal that Ms McKie attend a comparison of her print with the mark the following day. There was not evidence that he discussed this with Mr Mackenzie and Mr Dunbar that evening.

The exercise

7.107. Mr Mackenzie explained that SCRO anonymised test material, and with this being a blind test the material was to be contained on the comparator machine with no other information and staff were to be asked basically "would you eliminate this?", "with no restriction saying they had to find 16 or whatever".[156] "It was not a normal like-for-like comparison… part of the reason for that was to keep the thing anonymised."[157]

7.108. Mr Dunbar said that "blind trial" only loosely described what they did. A comparator was moved into Mr Ferry's room and, to try and keep the anonymity of what the decision was, what it was about and who was involved, it was decided that they would use a comparator with the mark clamped down on one side and the form clamped down on the other. Examiners might or might not have been able to see it was an elimination form but they would not know to whom it referred. The way the mark was clamped meant that no detail about the locus or crime was visible.[158]

7.109. Mr Dunbar approached officers to take part as Mr Mackenzie was out of the office.[159] This was in the time-frame between 6pm and 8pm.[160]

7.110. Mr Dunbar explained that the number of characteristics was not in the equation at this time. He was never asked about the number of characteristics, nor given instructions about the number of characteristics. The result that had left the office prior to 17 February was that the mark had been made by a particular individual and that it was an elimination. "That was where we took it from."[161] Therefore examiners were asked whether they would eliminate the mark.[162] They each returned to him and gave that confirmation and only then were their initials recorded by him. He did not discuss with them how many points they could see.[163]

154 CO_1156 Mackay enquiry statement of Mr O'Neill
155 Scottish Parliament Justice 1 Committee Official Report 23 May 2006 Col 3148
156 Mr Mackenzie 1 October page 90ff and FI_0046 para 138 Inquiry Witness Statement of Mr Mackenzie
157 Mr Mackenzie 6 October page 47ff
158 Mr Dunbar 6 October pages 78–79 and FI_0053 para 128 Inquiry Witness Statement of Mr Dunbar
159 FI_0053 para 129, 133 Inquiry Witness Statement of Mr Dunbar
160 Mr Mackenzie 1 October page 94
161 Mr Dunbar 6 October page 77
162 FI_0053 para 130 Inquiry Witness Statement of Mr Dunbar
163 Mr Dunbar 6 October page 80

7.111. Mr Dunbar had never been involved in an exercise like it before or since.[164]

The conclusion of the exercise

7.112. From his diary entry (which did not mention this exercise) Mr Dunbar knew that he finished work at 7.40 that evening.[165] Mr Mackenzie came back into the office during the exercise[166] and shortly before 7.40pm the decision was taken to stop the exercise when Mr Dunbar informed him that he had a total of twelve examiners in agreement (including the six who had previously expressed an opinion), with none in disagreement. Two officers had asked if they could continue their comparison the next morning.

7.113. Mr Mackenzie's recollection was that Mr Dunbar told him the result of the exercise. At least two officers had concluded that there was sufficient detail to eliminate the mark. He understood that one other asked for photographic enlargements and another had inadequate time to complete the comparison.[167]

7.114. Mr Ferry told the Parliament inquiry that he did not receive the results of the blind test.[168]

7.115. Mr O'Neill's observation in his Mackay enquiry statement was: "I do not know how Alan went about checking it or whose assistance he sought to do this, as I left the office for the day without knowing the result."[169]

7.116. Mr Dunbar kept a note of initials on a slip of paper and gave this to Mr O'Neill on his return to the office.[170] It has not been traced.

The participants

7.117. Mr Mackenzie was not sure how many had participated in the 'blind test'. To his knowledge it was at least four.[171] Mr Dunbar told the Inquiry that as he had twelve initials on his list that meant that he must have had at least another six further examiners look at the mark as part of the exercise.[172] The two he recalled were Mr Foley and Mr Bruce.[173]

7.118. During the hearings the Inquiry was able to develop a list of those it was thought might have participated in this exercise. In all evidence was obtained from eight examiners: Jean McClure,[174] Terence Foley,[175] Greg Padden,[176] Edward Bruce,[177]

164 Mr Dunbar 6 October page 77
165 FI_0053 paras 121, 134 Inquiry Witness Statement of Mr Dunbar and TC_0023
166 FI_0046 para 141 Inquiry Witness Statement of Mr Mackenzie
167 FI_0046 paras 139-140 Inquiry Witness Statement of Mr Mackenzie
168 Scottish Parliament Justice 1 Committee Official Report 23 May 2006 Col 3148
169 CO_1156 Mackay enquiry statement of Mr O'Neill
170 FI_0053 paras 134-139 Inquiry Witness Statement of Mr Dunbar
171 FI_0046 para 141 Inquiry Witness Statement of Mr Mackenzie
172 FI_0053 para 136 Inquiry Witness Statement of Mr Dunbar
173 FI_0053 para 135 Inquiry Witness Statement of Mr Dunbar
174 FI_0016 Inquiry Witness Statement of Ms McClure
175 Mr Foley 23 and 24 June and FI_0051 Inquiry Witness Statement of Mr Foley
176 Mr Padden 19 June, Mr Padden 23 June and FI_0008 Inquiry Witness Statement of Mr Padden
177 Mr Bruce 9 July, Mr Bruce 10 July and FI_0015 Inquiry Witness Statement of Mr Bruce

Raymond Brown,[178] Alexander Macleod,[179] Lorna McQueen[180] and Anne Noble.[181] In their statements to the Inquiry four of them (Mr Brown, Mr Macleod, Ms McQueen and Ms Noble) said they had no recollection of being involved. The other four gave an account of their own involvement in the exercise but, if another two were involved, the Inquiry was unable to identify them.

7.119. Mr Foley and Mr Bruce completed their examination that evening but Ms McClure and Mr Padden did not, asking to be permitted to look at it again in the morning.

Mr Foley

7.120. Mr Foley's evidence was that he was asked by Mr Dunbar to view a comparator screen set up in Mr Ferry's office. The mark and the print were already on the comparator and the screen was blank. Mr Dunbar asked if he could eliminate it, "he wanted me to see if I was happy that one was made by the other." Mr Dunbar "was not looking for a full 16 on it".[182]

7.121. Mr Foley noticed distortion in the mark. He assumed it was a double touch or twist. He saw a crease line above the core. He did not go near the area above that line but concentrated on the area just above and to the right of the core. It was not a very nice mark in quality terms. He found ten points in sequence and agreement and was happy to assign ownership to the mark. He would have been happy to speak to that in court: "To eliminate you must identify because you are assigning ownership of that mark. If I eliminated that to 10 I would not have said it was that person without me being satisfied it was that person."[183]

7.122. In February 2006, Mr Foley did a charting for the civil action[184] and found 16 points in sequence and agreement.[185] He attributed the increased number of characteristics to greater experience on his part, and also to the fact that in 1997 he only had the comparator whereas in 2006 he had images, access to his eyeglasses etc.[186]

Mr Bruce

7.123. Mr Bruce's recollection was vague.[187] He was asked by Mr Mackenzie or Mr Dunbar to look at a mark and a print on a comparator machine as part of a quality assurance exercise. He did not know whether the subject of the test was to check the comparator machine, or the prints or what.[188] His recollection was that he was asked to take a look and see how many points he could find.[189] It was not a case of reaching a conclusion, but reporting how many points he saw. Any sense

178 FI_0098 Inquiry Witness Statement of Mr Brown
179 FI_0119 Inquiry Witness Statement of Mr Macleod
180 FI_0097 Inquiry Witness Statement of Ms McQueen
181 FI_0096 Inquiry Witness Statement of Ms Noble
182 Mr Foley 23 June pages 174 and FI_0051 paras 22-25 Inquiry Witness Statement of Mr Foley
183 Mr Foley 23 June pages 174-182 and FI_0051 paras 22-29 Inquiry Witness Statement of Mr Foley
184 SG_0716
185 FI_0051 paras 31-32 Inquiry Witness Statement of Mr Foley
186 Mr Foley 24 June pages 12-14, 39-40
187 Mr Bruce 9 July page 149ff and FI_0015 para 5 Inquiry Witness Statement of Mr Bruce
188 Mr Bruce 9 July page 150
189 Mr Bruce 9 July page 153 and Mr Bruce 10 July page 44

he had that it was an elimination exercise would have been from seeing the back of the form that was on the comparator, not from being told.[190]

7.124. The exercise was not in accordance with normal practice because he was viewing only on a comparator screen.[191] He examined it for not more than 10-15 minutes.[192] He could not remember whether the screen was clear.[193] He believed that he exhausted his examination.[194] It was quite a complex mark and he struggled to see anything at first.[195] There was quite a bit of movement in the mark and he found it particularly fragmented.[196] From memory he got eight points[197] but he could not recall if those points were in sequence and agreement, nor whether they were in one piece of the mark or in different pieces.[198] He was not thinking in terms of a conclusion as to either identity or elimination, only how many points of comparison he could see.[199] He could neither confirm nor deny identity[200] and his evidence was that neither then nor at any time since had he been able to attribute ownership to Ms McKie.[201] He could not have regarded it even as an 'elimination' because ten was the minimum number for that and the furthest that he went at the Inquiry was that he had a suspicion (of a match).[202]

7.125. He was cross-examined on the basis that his evidence to the Inquiry was inconsistent with the statement that the Mackay team noted from him but he said that he had never been given the opportunity to check the accuracy of that statement.[203] He was also asked about the letter to the Lord President of the Court of Session in which, along with Mr Geddes and Mr Foley, he signed the statement that

> "We... confirm that at the time the above cases were being worked on within the Fingerprint Bureau we also carried out a comparison in relation to mark Y7 and independently reached the conclusion that the mark Y7 and the left thumb print of the donor fingerprint form (Shirley McKie) were made by one and the same person."[204]

His evidence was that he had not reached that conclusion but was confident in the opinion of those who had.[205]

7.126. Mr Bruce's evidence was contradicted by Mr Dunbar, who said:

190 Mr Bruce 10 July page 44
191 FI_0015 paras 5-6 Inquiry Witness Statement of Mr Bruce
192 FI_0015 para 7 Inquiry Witness Statement of Mr Bruce
193 FI_0015 para 6 Inquiry Witness Statement of Mr Bruce
194 Mr Bruce 9 July pages 150-152
195 FI_0015 para 7 Inquiry Witness Statement of Mr Bruce
196 Mr Bruce 9 July page 153 and FI_0015 para 7 Inquiry Witness Statement of Mr Bruce
197 FI_0015 para 8 Inquiry Witness Statement of Mr Bruce
198 Mr Bruce 9 July pages 150, 152
199 Mr Bruce 9 July page 153
200 Mr Bruce 10 July page 32
201 Mr Bruce 10 July pages 23-35, 42-56
202 Mr Bruce 10 July pages 68-77
203 Mr Bruce 10 July pages 43-44
204 SG_0557
205 Mr Bruce 10 July pages 25-30, 48-52

" ... Mr Bruce did not discuss the number of characteristics that he saw, he answered the question that he believed that it was eliminated. That is what he told me on 17th February.

Q. So what he told you was it had been eliminated?

A. Correct." [206]

Ms McClure

7.127. Ms McClure's evidence was that Mr Dunbar asked her to follow him to Mr Ferry's room. The mark and print were already on a comparator machine. Mr Dunbar asked her to look at them and tell him what she thought. He told her nothing else and left the room to let her carry out a comparison. The screen was clear. She struggled because it was not her normal practice to begin a comparison on the comparison machine. The mark was poor and she could see there was movement in it. When Mr Dunbar returned she had no answer for him. She asked to look at the mark again in the morning when her eyes were less tired. Mr Dunbar said that was fine but this was the last she saw of it.[207]

Mr Padden

7.128. Mr Padden's recollection[208] was that Mr Dunbar described the exercise as a quality assurance one and not a live case.[209] The circumstances around it were unusual. He was not aware of such an exercise happening before or since. Mr Dunbar led people into Mr Ferry's office and nobody talked about it after they came out.[210] A mark and a print were set up on a comparator screen and he was to compare the two and see what he thought. There was no guidance as to the purpose of the exercise.[211]

7.129. Mr Padden's main issue with the exercise was that the normal contextual information that an officer would have was not provided. He did not consider it the correct way to carry out an examination as that meant that the first couple of steps that an examiner would normally take were removed. These were a familiarisation with the mark, where it was from, where it was in situ in relation to the rest of that impression. Instead they went straight to the comparison. Also, "when you are looking at something on a comparator it is only a specific area that is enlarged. So, again, it is stopping you ...see [ing] everything in relation to even that impression itself….It could be the way it is captured you would not have that pre-knowledge that perhaps you might be looking at a thumb, for example."[212]

7.130. The comparator screen was already marked with a previous officer's markings, which was a bit sloppy.[213] He had a quick look and told Mr Dunbar that he did not

206 Mr Dunbar 6 October page 91
207 FI_0016 paras 6-11 Inquiry Witness Statement of Ms McClure
208 Mr Padden 19 June pages 152-153 and Mr Padden 23 June page 100ff
209 FI_0008 paras 4, 5, 13 Inquiry Witness Statement of Mr Padden
210 Mr Padden 19 June page 153
211 Mr Padden 19 June page 154 and Mr Padden 23 June pages 135-136
212 Mr Padden 23 June pages 101-102
213 FI_0008 para 10 Inquiry Witness Statement of Mr Padden

think all the markings were correct and was told to wipe them and start again. This happened occasionally.[214] The previous examiner might have been Mr Foley.[215]

7.131. The mark was close to insufficient for comparison. Because of the circumstances he felt he was not able to get the volume of information that would allow him to make a decision one way or another. He therefore asked if he could look at it the next day under his magnifying glasses, which was his normal method of carrying out a comparison, to see if he could reach a decision as to the donor, but Mr Dunbar said that he would rather have a decision now. He was not prepared to do that and Mr Dunbar accepted this.[216]

7.132. Though there had been office chat later that the exercise had featured Y7 the first official confirmation Mr Padden had that it did came in 2000 when he was interviewed by Tayside Police for the Mackay enquiry.[217] Mr Bruce also said that it was only later that he became aware that the print had been that of Ms McKie.[218]

Contact with officers at home

7.133. Mr Dunbar phoned Mr MacPherson at home as a professional courtesy "to let him know what was going on".[219]

7.134. Mr MacPherson said that at one point when he was off he received a telephone call from Mr Dunbar, Quality Assurance Officer, indicating that senior management had asked him to have available experts compare Y7 against the elimination fingerprints of Ms McKie, in the form of a 'blind trial'. Mr Dunbar had later informed him that all experts who undertook this comparison had agreed with the identification of Y7.[220]

7.135. In the context of questions from me about an examiner being expected to be 100% certain of his conclusion, Mr MacPherson indicated that he had never known an exercise like the 'blind test' to have been carried out "for an accused person or for anyone else for that matter". It was an ad hoc decision taken by management and as an examiner one felt slightly "irked that your professionalism has been called into question, but that was a thing put in place by management and I just had to live with it".[221]

7.136. Mr Dunbar did not know of Mr Geddes' involvement until "later" than his initial examination of Y7, but when he "discovered that Mr Geddes had actually been party to the elimination" he phoned him at home to clarify his position.[222] He thought that the phone call took place "a day or so" after the 'blind test' but before either of the two trials, although he could not specify a date. Mr Geddes confirmed to him that he had eliminated the mark but he had not found 16 characteristics.

214 Mr Padden 23 June page 136
215 Mr Padden 23 June pages 136–137 and FI_0008 para 10 Inquiry Witness Statement of Mr Padden
216 FI_0008 paras 10-11 Inquiry Witness Statement of Mr Padden
217 FI_0008 para 4 Inquiry Witness Statement of Mr Padden
218 Mr Bruce 9 July page 149
219 Mr Dunbar 6 October pages 81-82
220 FI_0055 para 159 Inquiry Witness Statement of Mr MacPherson
221 Mr MacPherson 3 November pages 149-150
222 Mr Dunbar 6 October page 82

However that was not the question Mr Dunbar asked, he just wanted to know what Mr Geddes's position was.[223]

7.137. Mr Geddes thought this telephone conversation would have been around the time of the 'blind test'. He told Mr Dunbar that he had identified Y7 as a fingerprint of Ms McKie but had only managed to find ten characteristics. He reported orally to Mr Dunbar in this phone call.[224]

Others' knowledge of the 'blind test'

7.138. Ms McBride remembered the 'blind test' although she had no idea then that this was what was going on. She was in the office at the time it was being carried out and could remember feeling very angry on the day in question. People were filing past her desk being quiet. Whatever was going on took place in Mr Ferry's room. Mr MacPherson was not in the office at the time, she thought he was on annual leave. She later found out, probably months later, that mark Y7 and Shirley McKie's prints were being compared on the comparator.[225]

7.139. Mr Stewart said he found out about the 'blind test' a long time afterwards, perhaps even after the trial in *HMA v Asbury*. He described it as a management decision that was not widely disseminated. He eventually found out that Mr MacPherson had been informed about this exercise. A 'blind test' was not standard procedure. This was the first time he had heard about such a thing taking place.[226]

Commentary - the events of 17 February

The comparison by Mr Dunbar and Mr Mackenzie

7.140. A fresh comparison of mark and print had now been carried out by two of the most experienced examiners in the bureau, Mr Dunbar and Mr Mackenzie, acting independently.

7.141. The circumstances were not normal, with Mr Mackenzie, who examined the mark and print after Mr Dunbar, feeling under some pressure to complete his comparison.

7.142. Though they were satisfied of a match between mark and print, like Mr Geddes, neither of them found 16 characteristics in sequence and agreement.

7.143. The result was understood by the police and Ms McKie to be another confirmation of the identification. It was in fact the first confirmation to be undertaken after the original identification and verification on 11 February.

The 'blind test'

7.144. SCRO were in an unusual situation; their conclusion on a mark was under challenge. The conclusion had already been signed off by four of their number and was now attested to by two of the most senior examiners in the bureau. Next day there was to be a further comparison which, as it stood at this point, the maker of the mark was to attend. Mr O'Neill wanted the situation double-checked.

223 Mr Dunbar 6 October page 82
224 Mr Geddes 26 June pages 137-139
225 FI_0039 paras 94ff Inquiry Witness Statement of Ms McBride
226 FI_0036 para 155 Inquiry Witness Statement of Mr Stewart

7.145. I accept Mr Mackenzie's assertion that this exercise was not undertaken because he had doubts about his own conclusion on the mark. The difficulty the senior officers had that evening was how to do a double-check without undermining the team that had identified the mark in the first place, perhaps in particular Mr MacPherson the lead examiner. The answer was to call it a training exercise. Calling it a training exercise provided 'cover' in presenting the unorthodox exercise to those asked to take part.

7.146. Mr MacPherson saw its very conduct as being a criticism of his professional standing. The fact that it turned into an instruction as far as Mr Dunbar was concerned helped. He could present it, in his telephone call to Mr MacPherson, as a management decision that he had to go along with. The secrecy in which it was cloaked served further to protect Mr MacPherson's standing.

7.147. The fact that Mr Dunbar passed over his note with twelve sets of initials to Mr O'Neill detracts from the notion that this was truly a training exercise. But the process itself was unusual and, moreover, unsatisfactory, as examiners were deprived of the normal information they would have about a mark, and not permitted to examine it under glasses.

7.148. Time was pressing that evening and it was a difficult mark. It appears likely that in fact only two examiners reached any conclusion during the exercise and the weight that can now be applied to the conclusion of one of them (Mr Bruce) is open to question given his evidence that he believed that he was only being asked how many points of comparison he could see and not what opinion he would form on the comparison.

Results of the comparisons

7.149. Mr Mackenzie's evidence was clear. At no time in 1997 (or subsequently) was he aware of any fingerprint officer coming to him and saying he or she did not think it was Ms McKie's print.[227] Two officers had not completed their examination. He understood that one wanted to see photographic enlargements and the other had insufficient time because it was near the end of the shift. No-one had come back with a negative result.[228]

7.150. Mr Dunbar was also clear in his evidence. No-one had doubted the match. If someone had doubted it he would have passed that information on. The dispute between Mr Dunbar and Mr Bruce as to whether or not the latter positively agreed the 'elimination' cannot be resolved due to the absence of contemporaneous note-taking in SCRO. Nonetheless, even on the evidence that Mr Bruce gave to the Inquiry he was not positively disputing the conclusion: he could neither confirm nor deny.

7.151. The fact remains that neither Mr Foley nor Mr Bruce found 16 points in sequence and agreement during the 'blind test'. This meant that by now, although the original four SCRO examiners had identified the mark to the 16-point standard, five had not – Mr Geddes, Mr Mackenzie, Mr Dunbar, Mr Foley and Mr Bruce. This was not information disclosed at the time.

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227 Mr Mackenzie 1 October page 108

228 FI_0046 paras 140–141 Inquiry Witness Statement of Mr Mackenzie and Mr Mackenzie 1 October pages 110-111

Tuesday 18 February

At SCRO

7.152. On the morning of 18 February Mr O'Neill met Mr Ferry and informed him of the request that Ms McKie come into the office to watch a comparison of her prints with Y7. Mr O'Neill recalled that Mr Ferry was unhappy at the suggestion that a police officer come and "oversee" the checking of a mark, being concerned that it could create a legal precedent.[229]

7.153. Mr Ferry phoned Mr Thomson to say that SCRO had a difficulty with the ad hoc request for Ms McKie to be present during the comparison but would attempt to do so if officially requested. Mr Thomson relayed this back to Mr Cameron and understood that it was decided by Mr Cameron, Mr Orr and Mr Gibb not to make an official request to SCRO but to accept the findings of the experts in relation to the new photograph of the mark and new ten-print form from Ms McKie.[230] Mr O'Neill said that Mr Ferry refused the request to have Ms McKie present but agreed to have the mark checked again.[231]

7.154. Mr Mackenzie was called to Mr Ferry's office.[232] He assumed that Mr Ferry, who he thought had not been in the office in the later part of the previous day, had had an update and learned the results of re-examination. Mr Ferry appeared angry. Mr Mackenzie presumed "from the tone of Mr Ferry somebody must have been pressurising him in the background". Mr Mackenzie was asked if he was sure it was Ms McKie's print and replied that he was.[233]

7.155. At some stage they were joined by the Head of CID and Mr Mackenzie learned that the police were going to take a new photograph and new prints. These would be brought to SCRO for comparison.[234] Mr Mackenzie was aware that Mr Ferry had refused the request to have Ms McKie present and thought this decision was correct because it would not be normal to have the officer present.[235]

7.156. Mr Mackenzie attended a meeting in Mr Ferry's room which as he recalled was while they were waiting that morning for the new materials to arrive. Mr Ferry wanted to clarify with them that they were satisfied with the elimination because, as he put it, an officer's career was on the line.[236] There was no discussion about numbers of points. "He got reassurance from me based on my comparison of the first form the night before that I was totally satisfied."[237]

7.157. Mr Dunbar said he and Mr Mackenzie were called to Mr Ferry's room and he described the meeting as a rant. Mr Ferry seemed to be concerned because of the damage that could be done to a serving officer. Mr Dunbar thought that this was after Mr Ferry returned from Peebles, but that is difficult to reconcile if, as it

229 FI_0120 para 37ff Inquiry Witness Statement of Mr O'Neill
230 CO_2372 Mackay enquiry statement of Mr Thomson
231 FI_0120 para 39 Inquiry Witness Statement of Mr O'Neill
232 FI_0046 paras 142-144 Inquiry Witness Statement of Mr Mackenzie
233 Mr Mackenzie 2 October page 135
234 FI_0046 para 143 Inquiry Witness Statement of Mr Mackenzie. Mr Mackenzie could not remember the Head of CID's name.
235 FI_0046 para 150 Inquiry Witness Statement of Mr Mackenzie
236 FI_0046 para 147 Inquiry Witness Statement of Mr Mackenzie
237 Mr Mackenzie 2 October page 135

appears, the re-examination was on the morning of 18 February and the Peebles conference began at noon that day. Mr Dunbar assumed that Mr Ferry had got himself into a state of excitement because of conversations that he was having with other officers.[238]

7.158. Mr O'Neill went to the event in Peebles and left Mr Mackenzie in the office to make arrangements for the check.[239]

7.159. In his statement to the Mackay enquiry Mr Ferry is recorded as saying that his recollection was that Mr Mackenzie had confirmed the identification before he (Mr Ferry) was informed because he remembered asking him if he was sure and he said that he was confident.[240] In his evidence to the Parliament inquiry he mentioned that he was told that three experts had looked at it.[241] It is difficult to reconcile this with the second examination by only Mr Mackenzie and Mr Dunbar the day before unless there had been factored into the discussion on the morning of 18 February the fact that other officers had agreed the result through their participation in the 'blind trial' or alternatively the "three" includes Mr MacPherson from the first examination.

7.160. As indicated above, in that statement Mr Ferry also said that he informed Mr Welsh who asked that he have the mark re-examined to make absolutely certain before any further action was taken. He made a similar statement in his evidence to the Parliament in which he added that at this point he was asked to get "another three experts" to check it. In his Mackay enquiry statement he said he asked Mr O'Neill to have the mark checked again.[242] It would appear that this coincides with the exercise instigated by the police namely a fresh comparison with a new photograph and new prints.

The new print form and photographs

7.161. Mr Shields took a further set of elimination prints from Ms McKie,[243] and Ms McKie was told that SCRO would not accept her being present when these were compared with the mark.[244]

7.162. Ms McKie then returned to the locus with Mr McAllister and other officers including Sergeant Derek Thomson and PC Archibald McKinlay, two scene of crime officers from the Identification Bureau. A label was applied to the wooden door surround and signed by Ms McKie and others who attended.[245]

238 FI_0053 paras 141-143 Inquiry Witness Statement of Mr Dunbar
239 FI_0120 para 39 Inquiry Witness Statement of Mr O'Neill
240 CO_1159 Mackay enquiry statement of Mr Ferry
241 Scottish Parliament Justice 1 Committee Official Report 23 May 2006 Col 3139
242 CO_1159 Mackay enquiry statement of Mr Ferry
243 CO_0345 pdf page 66. The Inquiry received the original of this form – DB_0008h. These prints became Production 179 in the trial in *HMA v McKie*.
244 CO_2219 Mackay enquiry statement of Ms McKie
245 FI_0035 para 9 Inquiry Witness Statement of Mr McKinlay and CO_2219 Mackay enquiry statement of Ms McKie

7.163. Mr McKinlay confirmed he took photographs of Y7 with its original label and with a new label and that the photographs in Production 189 were both taken by him that day.[246]

The examiners

7.164. Once the new fingerprint form and photographs were delivered to SCRO, some time after 11:00, independent comparisons were undertaken, Mr Mackenzie thought by four examiners.[247] Mr Mackenzie and Mr Dunbar both examined the mark again,[248] and the third examiner was Sergeant David Halliday.[249]

7.165. The fourth examiner was Mr Stewart, who said that he was asked to compare the second image and second set of elimination prints on 18 February by Mr Mackenzie.[250] He could remember "the second mark coming in when Ms McKie was present at the locus".[251] Mr Stewart explained "Not all of us who had signed it first time round were in the office. Accordingly different people would have looked at it. Hugh MacPherson was on the late shift."[252]

7.166. Mr Halliday was a police officer who had been a fingerprint examiner in the Glasgow bureau for many years having started his training in 1979. At the time he was the AFR Manager and worked slightly separate from the main fingerprint hall. Mr Dunbar came and asked him to take a look at a mark. It was a frequent practice at the time to get other opinions on marks. This was during the course of a normal working day and there would have been a full complement of staff in the office. The mark and print were on a comparator in the main hall. He did not know if anyone else had seen the mark before him. At the time he was not aware of any importance attached to it. It was not an official second check, just to get another expert's views on it. He was not otherwise involved in looking at marks in this case.[253]

Examiners' observations – 18 February

7.167. Mr Mackenzie found the second image of Y7 perfect for comparison and of the same quality as the first one. The second set of prints was better than the first. In both comparisons he used the plain impressions as the rolled impressions available

246 DB_0012h. A photograph taken that day is also the right-hand photograph on page 1 (pdf page 6) of Production 152 (ST_0006h) – see chapter 11 para 3. Mr McKinlay also took general photographs of the vicinity and the photocopies in Mr Wilson's disciplinary report, CO_0345, pages 188-189, were photographs he took. FI_0035 paras 9-10 and 14 Inquiry Witness Statement of Mr McKinlay

247 FI_0046 para 145 Inquiry Witness Statement of Mr Mackenzie

248 Mr MacPherson was aware a re-photograph had been taken in February and both photographs were enclosed when he was preparing one of the court production books but he had no recollection of comparing a new image with the prints. What he remembered was comparing the further set of elimination prints with the original set: "This was just to make sure they had been accurately taken." FI_0055 para 156-158 Inquiry Witness Statement of Mr MacPherson

249 Mr Mackenzie 1 October page 109 and FI_0046 para 145 Inquiry Witness Statement of Mr Mackenzie

250 FI_0036 paras 157-158 Inquiry Witness Statement of Mr Stewart

251 Mr Stewart 5 November page 102

252 FI_0036 para 157 Inquiry Witness Statement of Mr Stewart

253 FI_0011 paras 1-3, 15ff Inquiry Witness Statement of Mr Halliday. Although by the time of the Inquiry he was not clear as to the date the statement noted from him by the Mackay enquiry on 23 August 2000 (CO_1111) was consistent with him having carried out a comparison on 18 February because the narrative points to him having examined the mark the day after the 'blind test'.

to him on 17 and on 18 February were inferior and smudged.[254] He considered that an enlargement made later from this plain impression from 18 February was crisp in detail and very sharp. It was a well-taken plain impression.[255]

7.168. He used magnifying glasses and the comparator, as he had done the previous day. Again he concentrated on the lower part below the fault line from the core out to the right-hand side.[256] The improved detail on the second impressions enabled him to form an opinion based on twelve or thirteen characteristics.[257] He discounted the upper half due to his perception at the time that it was affected by distortion.[258]

7.169. In 1999 when he revisited the matter, he found points in the upper part that were in sequence and agreement. He indicated that that area was not available to him in 1997 but his principal position was that, although there was a fault-line above which there was major disruption, the lower half allowed him to give a firm confirmation. Within the narrow window of opportunity, from the materials he had available, he was totally satisfied as to his conclusion.[259]

7.170. On the basis of both his first comparison on 17 February and his second, on 18 February, he satisfied himself that the mark was made by Ms McKie.[260] Based on his experience the mark was unnatural in its overall form, and the area above the fault-line to him stood out "like a beacon" as being separate from the lower area. He was totally satisfied the fault-line was the key feature of the mark. If the mark was in fact one piece it was not Ms McKie's.[261]

7.171. Mr Dunbar did not recall any improvement with the comparison of the new form and photographs of Y7. He was still satisfied with the area below the fault-line, those characteristics that he could not account for above the fault-line being as a result of movement or double touch.[262] He examined the material to see if he could provide a more positive explanation for this area but he was unable to do so from the material he had.[263]

7.172. In 2006, when shown enlargements by the Scottish Executive lawyers, he was able to "track down" characteristics above the fault-line. One unusual characteristic that he had not seen in 1997 but he saw in 2006 was what he described as a "hawk-eye". The area in which it appeared supported the conclusion that there was movement or distortion in the mark.[264] This was the feature that became known as the "Rosetta".[265]

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254 Mr Mackenzie 30 September page 48 and FI_0046 paras 151-152 Inquiry Witness Statement of Mr Mackenzie
255 Mr Mackenzie 30 September pages 48-49
256 FI_0046 para 153 Inquiry Witness Statement of Mr Mackenzie
257 Mr Mackenzie 30 September pages 49, 96ff and FI_0046 para 152 Inquiry Witness Statement of Mr Mackenzie
258 Mr Mackenzie 30 September page 122
259 Mr Mackenzie 30 September pages 122-129
260 Mr Mackenzie 2 October page 130
261 Mr Mackenzie 30 September pages 129-130
262 FI_0053 para 139 Inquiry Witness Statement of Mr Dunbar
263 Mr Dunbar 6 October pages 74-75
264 FI_0053 paras 114-116 Inquiry Witness Statement of Mr Dunbar
265 See chapter 25

7.173. Mr Halliday removed the mark and print from the comparator, whose screens were unmarked, and examined them using magnifying glasses. He also used the comparator.[266] His initial impression was that the crime scene mark was a right thumb but on closer examination he concluded that it was a left thumb with a lot of distortion giving the impression of a right thumb. He saw this from near the top of the thumb.[267] The mark which was "pretty ropey and tricky"; scored at 2 out of 10 on the range of identification.[268]

7.174. Mr Halliday was in no doubt. On the comparator he marked up 16 characteristics in sequence and agreement. He found no points in disagreement, "although there were some tolerances for movement, given the elasticity of the skin".[269] There was twisting clockwise to the right to about half past one or two o'clock. He signed the screen and told Mr Dunbar that he was satisfied as to the identity of the mark.[270]

7.175. Mr Stewart carried out a comparison and reached the same conclusion as before. He observed "The visit of Shirley McKie to the locus, the retaking of the photograph and prints and the subsequent re-comparison at SCRO were all non-standard procedures."[271]

The police are informed

7.176. The results of the re-examination were relayed by telephone to Mr Ferry who by this time was at Peebles.[272]

7.177. In his Mackay enquiry statement Mr Ferry said that he was informed that other experts had examined the mark and confirmed the identification. He relayed that back to Mr Welsh. He was made aware that a new photograph and new prints had been taken and examined by Mr Mackenzie and Mr Dunbar and the identification stood. The statement concluded "Even if the initial persons identifying the marks had made a mistake I have every confidence that Robert Mackenzie and Alan Dunbar would not have allowed it to proceed if they were not confident in themselves." At the Parliament he said that, having been asked by the ACC [Mr Welsh] to get another three experts to check it, he did that and got the same result." They said that there was definitely no mistake and that it was her fingerprint."[273] It would appear that the three examiners, at this point, must be Mr Mackenzie, Mr Dunbar and Mr Halliday, or perhaps Mr Stewart. However of these only Mr Halliday was an additional examiner. The arithmetic that Mr Ferry mentions only works if the participants in the 'blind test' are taken into account.

7.178. Mr Thomson told the Mackay enquiry that in the afternoon he had a telephone call from Mr Ferry to say that three of his top experts had examined the mark and were adamant that it was Ms McKie's print. There was no doubt whatsoever.[274]

266 FI_0011 paras 20–21, 24 Inquiry Witness Statement of Mr Halliday
267 FI_0011 paras 21-22 Inquiry Witness Statement of Mr Halliday
268 FI_0011 para 22 Inquiry Witness Statement of Mr Halliday
269 FI_0011 para 24 Inquiry Witness Statement of Mr Halliday
270 FI_0011 paras 25-26 Inquiry Witness Statement of Mr Halliday
271 FI_0036 paras 157-158 Inquiry Witness Statement of Mr Stewart
272 FI_0046 para 146 Inquiry Witness Statement of Mr Mackenzie
273 CO_1159 and Scottish Parliament Justice 1 Committee Official Report 23 May 2006 Col 3139
274 CO_2372 Mackay enquiry statement of Mr Thomson

7.179. When Mr Mackenzie arrived at the Peebles event "later in the day" Mr O'Neill learned from him that the result of the check was that Y7 had been identified as having been made by Ms McKie.[275]

7.180. Mr McAllister understood that a full identification exercise was carried out afresh and that afternoon Mr Thomson told him the mark had again been identified as that of Ms McKie.[276]

Ms McKie is informed

7.181. Ms McKie took a call from Mr McAllister about 14:30 to say that SCRO were adamant the mark was hers.[277]

Commentary - the events of 18 February

7.182. SCRO were right to take issue with the proposal that they undertake their work in the presence of a police officer, especially one they considered to be the maker of the mark in question. Fingerprint examiners have obligations to the court and may be required to demonstrate their work to the court. They cannot be expected to undertake their live work under the gaze of a police officer, especially in the circumstances that pertained here.

7.183. The outcome of the activity on 18 February was that the identification had been confirmed again. It may or may not have been thought to have been helpful to engage Mr Halliday because he was a police officer in management and slightly removed physically from the general office. Still, the drawback to the comparison on 18 February was that only one fresh pair of eyes was involved.

Commentary - Overview of checks from 11-18 February

7.184. As soon as Ms McKie denied strenuously that she had been in the house where her mark was said to have been found, the relevant individuals were operating in uncharted territory. The police challenged SCRO and they had to respond. Neither had procedures to address this unusual situation.

7.185. At the outset, it was undoubtedly important that practical points were checked. There might have been a mix-up over the photographs and print forms. Ms McKie thought this might have happened. So when Mr McAllister contacted SCRO he was assured that Y7 had indeed been compared with elimination prints from Ms McKie. The work on 12 February involving both the Identification Bureau and SCRO also served to address this point. The police may have expected more to have been done by 13 February, perhaps expecting fresh comparisons, but nothing turns on that because fresh comparisons were carried out on 17 and 18 February.

7.186. When Ms McKie was found to be adhering to her position on her return to work on 14 February, the police had little option. Given the possible prejudice to the murder investigation, they had to be as sure as they could that SCRO were right. Mr Heath escalated matters and it was only when Mr Thomson contacted Mr O'Neill that

275 FI_0120 para 44 Inquiry Witness Statement of Mr O'Neill
276 FI_0068 paras 101-102 Inquiry Witness Statement of Mr McAllister
277 CO_2219 Mackay enquiry statement of Ms McKie

the kind of confirmation needed became evident to SCRO. Not only was a new comparison needed, it was needed within hours; tomorrow would not do.

7.187. This put SCRO under pressure and, as Mr Mackenzie mentioned, his examination was under a time constraint. The checks that were undertaken provided reassurance at SCRO. They show that SCRO went out of their way to see if there was any doubt about the identification, even unofficially getting it checked in an unorthodox way, which is inconsistent with any suggestion that there was a conspiracy against Ms McKie.

7.188. Throughout this confirmation process there is no evidence of there being a pressure to get to sixteen characteristics. Witnesses such as Mr Mackenzie and Mr Dunbar would deny that getting to sixteen influenced their assignment of ownership. Indeed they were candid that they did not see sixteen points during these comparisons.

7.189. It is not surprising that senior police officers (both those in senior management positions at SCRO and those involved directly and indirectly in the murder investigation) took reassurance from the confirmation of the position provided by Mr Mackenzie and Mr Dunbar. As far as the police were concerned, they tested SCRO as far as they could go. They kept on checking. This does not support a contention that they were out to "get" Ms McKie. They are to be commended for their insistence on the position being checked and re-checked.

7.190. There was no procedure set down for either the police or SCRO. The procedures were improvised to address an extraordinary situation, and it would not be surprising for them to be found wanting in some respects.

7.191. Within SCRO there was no audit trail. Mr Dunbar volunteered that on reflection it would have been better if he had noted the initials of people in his diary, but that was only one part of an almost entirely undocumented process.[278]

7.192. The Inquiry's investigations have disclosed that there was a spread among the SCRO examiners regarding the number of matching characteristics:

(i) the four who signed the court reports (Mr MacPherson, Mr Stewart, Mr McKenna and Ms McBride) and Mr Halliday found at least 16 points in sequence and agreement;

(ii) the first verifier Mr Geddes observed only ten points in sequence and agreement and did not agree Mr MacPherson's fuller 16 points even when they were shown on a comparator machine;[279]

(iii) Mr Mackenzie observed 10-11 points on 17 February and 12 or 13 on 18 February;

(iv) Mr Dunbar saw less than 16 points in his two examinations (perhaps at least ten points, though he could not be specific as to the number);

(v) during the 'blind test' Mr Bruce found eight and Mr Foley found ten.

278 FI_0053 para 137 Inquiry Witness Statement of Mr Dunbar
279 FI_0031 paras 103, 106 Inquiry Witness Statement of Mr Geddes

7.193. If Mr Bruce is included among those who were in agreement that the mark was made by Ms McKie, as Mr Dunbar believed him to be at the time, that would give a total of ten. The Inquiry was unable to identify another two to reach the total of twelve mentioned by Mr Dunbar. One possibility is that his list included the two examiners who wanted to continue their examination the following day. That could be consistent with the proposition that twelve examiners were consulted and no-one had expressed a doubt about the identification.

7.194. No one individual at the time was aware of the level of detail that has since come to light. For example, Mr Dunbar (who conducted the blind test in which Mr Bruce and Mr Foley participated) said that the question asked was "Do you eliminate this person, yes or no";[280] and, therefore, there was no contemporaneous discussion or recording of the number of points found. The SCRO 'end of case' letter[281] which summarised the findings of the fingerprint comparison work undertaken by SCRO (issued in name of Mr Ferry but actually prepared by Mr MacPherson[282] and lodged as Production 174 in *HMA v McKie)* simply recorded the result: "Eliminated as SHIRLEY CARDELL [sic][283] (DC)." It gives no background detail regarding the sequence of events covered in this chapter. More significantly, the verb "eliminated" is ambiguous because an 'elimination' can be made either to the 16-point standard or to a lesser standard[284] and to say that the mark has been eliminated does not disclose the standard that has been applied.

7.195. From the point of view of these examiners, the number of characteristics was not relevant. Examiners themselves can be 100% certain of their conclusion without finding as many as 16 points, so the fact that as many as five of those examiners (Mr Geddes, Mr Mackenzie, Mr Dunbar, Mr Foley and possibly Mr Bruce) made only an 'elimination' may not in itself have been of significance to the examiners at that time.

7.196. However, that fact was significant for two reasons given that the legal standard of the day was 16 points.

7.197. First, had the individual findings of the examiners been collated, the fact that as many as five of them could not find 16 points could have afforded an opportunity internally to reflect on the question whether the examiners who, in due course, prepared the joint reports for court had applied an appropriate degree of tolerance in arriving at their conclusion. It has to be recalled that the five who did not find 16 points were all SCRO examiners, and included the two most senior examiners in the bureau, so their observations were worthy of respect.

7.198. Second, the final judgment was not for SCRO. The ultimate question was one for Crown Office and was whether or not the prosecution could reliably include the fingerprint evidence in the case against Mr Asbury and, in due course, against Ms McKie. At the very least the fact that five SCRO examiners could not agree an 'identification' to the full legal standard was of relevance to Crown Office.

7.199. These two matters are considered further in chapter 28.

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280 Mr Dunbar 6 October page 89
281 SG_0383; see chapter 22 paras 54-55
282 FI_0056 para 31 Inquiry Witness Statement (Supp.) of Mr MacPherson
283 Ms McKie's name at the time
284 See chapter 5 para 2

CHAPTER 8

THE PERIOD FROM 18 FEBRUARY TO THE TRIAL IN *HMA v ASBURY*

Introduction

8.1. The Crown's exercise of discretion in deciding to proceed to trial against Mr David Asbury on a charge of murder does not come within the terms of reference of the Inquiry. My review of the prosecution's preparations for the trial was confined to casting light on the instructions that were given relative to the fingerprint evidence and any insight these provided into attitudes towards such evidence in general at the time.

Mid February – early March 1997

Preparation for the trial in *HMA v Asbury*

8.2. At about the same time as the police were having the identification of Y7 checked, the procurator fiscal was informed of the time-scales for Mr Asbury's trial. On 14 February Mr Heath submitted a report on Y7 to the Divisional Commander, Mr Cameron.[1] By letter of the same date from Crown Office, Mr Gallacher[2] advised the procurator fiscal in Kilmarnock that the case had been provisionally allocated for trial during the High Court sitting in Glasgow commencing on 12 May.[3] The last date for service of an indictment for this sitting was 9 April and the Precognition would require to be submitted from Kilmarnock to Crown Office by 31 March 1997.

The police inform the procurator fiscal about Y7

8.3. The following week Mr Heath was in touch with the procurator fiscal. He had been engaged on another investigation, was about to go on a period of leave and was concerned that the report he had submitted to Mr Cameron had not yet gone to the fiscal. He also felt that the fiscal should have been involved in the steps taken after his report[4] and so on 20 February he told Mr Thomson he intended to speak to the fiscal to inform him of developments.[5] His notebook indicated that he also updated Mr Orr that morning. This included informing him of telephone calls from Ms McKie's father though by the time of the Inquiry Mr Heath had no recollection of these calls.[6]

8.4. On 20 February Mr Heath met Mr McMenemy and Mr McGlennan and updated them as fully as possible. He was told they would inform Crown Office. [7]

8.5. He briefed his detective inspectors on the situation before going on holiday from 21 February.[8] Mr Thomson wrote an addendum to Mr Heath's report with an update to 21 February covering his meeting with Ms McKie on 17 February and the further

1 CO_1716
2 Now Sheriff Gallacher
3 CO_4028
4 Mr Heath 9 June pages 71–72 and FI_0013 paras 282, 287 Inquiry Witness Statement of Mr Heath
5 FI_0013 para 281 Inquiry Witness Statement of Mr Heath
6 FI_0013 para 283 Inquiry Witness Statement of Mr Heath and AC_0003 page 3
7 Mr Heath 9 June page 73, FI_0013 para 283 Inquiry Witness Statement of Mr Heath and AC_0003 page 3
8 FI_0013 paras 284, 288 Inquiry Witness Statement of Mr Heath and AC_0003 page 4

comparison of Y7 on 18 February.[9] Mr Thomson reported that Ms McKie was "absolutely adamant" that she had not entered the house beyond the porch during the murder investigation and had no recollection of being in the house on other enquiries. She was "most emphatic" that it could not be her print.

8.6. The Heath report, as supplemented by Mr Thomson, served as the basis for a report that Mr Orr prepared for the procurator fiscal. It was in two parts: a narrative dated 24 February (Monday) and an addendum dated 26 February.[10]

8.7. Subject to the point mentioned at paragraphs 11 and 12 below, the narrative in Mr Orr's report was broadly consistent with the sequence of events described in the preceding chapter.

8.8. The first part of Mr Orr's report concluded, echoing wording from Mr Heath's report of 14 February, that unless a serious mistake had been made twice by Identification Bureau and SCRO fingerprint officers, there was "overwhelming legally accepted evidence" that Ms McKie had been in the bathroom area of the house. It narrated that she and Mr Shields were both emphatic that she had not been in the interior of the house. The procurator fiscal was asked to review the implications of his report in the context of the prosecution of Mr Asbury as well as considering whether an independent scrutiny of the Identification Bureau process at the scene should be carried out to confirm its integrity.

8.9. The addendum began by making reference to Z7 and also noted that Y7 had been found on the second dusting of the door-frame. It was observed that although it was surprising that the "apparently fresh fingerprint" had not been detected with aluminium powder this was not unusual; hence the Identification Bureau practice in serious cases of repeating examinations using black powder.

8.10. The addendum also referred to a discussion between Mr Orr and Mr McGlennan on 26 February when the report was delivered to the procurator fiscal's office. It recorded that after full discussion the fiscal concluded: (i) Mr McGlennan would contact Crown Office to arrange a meeting with the Home Advocate Depute,[11] Mr Kevin Drummond Q.C., to discuss the question of the fingerprint; (ii) at this stage there was no need either to review Identification Bureau procedures or to treat Ms McKie as a suspect; there was a sufficiency of evidence against the accused; and (iii) the officers who maintained the security of the murder scene could be interviewed by the police and asked "in a very confidential way" whether Ms McKie had ever been inside the house between "the material times".[12]

The limitation to the police report

8.11. Mr Orr's report, written as it was on the basis of the reports by Mr Heath and Mr Thomson, was written from the perspective of the understanding of the police. Thus in referring to the events of 11-13 February this report proceeds on the basis that SCRO had carried out a further examination of Y7 between those dates when in fact SCRO had not done so. In itself that was not a significant error

9 CO_1716
10 CO_1717
11 There were a number of duty advocate deputes, but only one Home Advocate Depute, which was the senior post.
12 CO_1717

because the report does accurately record that the mark was submitted to further comparison on 18 February. More fundamentally, the report records no more than the conclusion of the comparisons by SCRO, which is all that the police officers were told. It does not record that Mr Geddes and the majority of those involved in subsequent checking of the mark from 17 February had reached a conclusion at no higher than the level of an 'elimination' on less than 16 points. Mr Orr, like Mr Heath before him, understood that there was "overwhelming *legally accepted* evidence" (emphasis added) and that was because it was not disclosed to them that there was any issue about the ability to satisfy the 16-point standard.

8.12. The distinction between an 'elimination' and an 'identification' was not canvassed in this report because SCRO had not raised the matter with the police and no one, then or subsequently, raised the matter with Crown Office. Crown Office was, accordingly, not alerted to the distinction nor in a position to give consideration to the implications of the findings by Mr Geddes, Mr Mackenzie, Mr Dunbar, Mr Foley and Mr Bruce.

The procurator fiscal informs Crown Office about Y7

8.13. Mr McGlennan had a conversation with Mr Gallacher at Crown Office and, by letter dated 26 February, sent him a copy of Mr Orr's report.[13]

8.14. There was no evidence of a meeting involving Mr McGlennan and Mr Drummond but the matter did come to Mr Drummond's attention as there was a note from him, dated 27 February, on a slip in the Crown Office file:[14]

> "1. Eliminate her from the murder inquiry.
>
> 2. Once (1) has been carried out the position of [Ms McKie] should be reconsidered including
>
> (a) on list of witnesses (sic)
>
> (b) precog[15] on oath
>
> (c) further interview by a counselling officer."

The Crown instructs actions concerning Y7

8.15. A letter dated 28 February from Mr Gallacher to Mr McGlennan[16] broadly reflected and expanded upon the content of Mr Drummond's note. The matters covered included the possibility of removing the door-frame to preserve the fingerprint and also a more specific line of enquiry:

> "It would also be useful to obtain information from the Scenes of Crime Officers as to whether they can give an opinion as to how fresh the print was and how recently the imprint was made and whether any view can be given as to the circumstances

13 CO_4026 and CO_4027
14 CO_4052. He subscribed "TAKD"
15 Short for 'precognosce on oath'. Precognition on oath is the formal process by which a witness may be required to attend before the sheriff to be interrogated under oath. The precognition is recorded and signed by the witness and by the sheriff.
16 This would be consistent with the normal practice at the time. Crown Counsel's instructions were forwarded internally to a procurator fiscal within Crown Office and it was that procurator fiscal who communicated the instruction to the outside agency, in this case the local procurator fiscal's office.

in which the print and indeed the palm print were made. In other words what was the person doing when they left these prints."[17]

8.16. The reference to a palm print here is to Z7.

The procurator fiscal instructs actions by the police

8.17. By letter dated 3 March Mr McGlennan communicated the Crown Office instructions to Mr Orr for implementation.[18] The officers on guard duty at the locus with responsibility for maintaining logs were to be interviewed "in an effort to ascertain" if Ms McKie entered the house. Efforts were to be made to exclude her from the murder investigation by establishing that she could not have been in the house at the time the murder was committed. Assuming that this exercise had been carried out satisfactorily she was to be interviewed by a senior officer who was to make it plain to her that she was likely to have to give evidence at the trial. The letter included the following passage: "Any anxiety that she may have in relation to any breach of police procedures will of course require to be seen in the context of the potential consequences if the fingerprint evidence is accepted and she maintains in court that she was never in a position to have produced the print."

8.18. As far as the fingerprint process was concerned it was to be ascertained from scene of crime officers or the Identification Bureau whether there was any merit in removing the door-frame for preservation purposes.

8.19. The letter also passed on Mr Gallacher's point about it being useful if information could be obtained as to how fresh the print was, how recently the imprint was made and what the donor might have been doing at the time.

The police and Ms McKie

8.20. On 19 February Ms McKie had gone on sick leave. She stated that following Mr McAllister's telephone call on 18 February to tell her the result of the comparison undertaken that day she became even more distressed.[19]

8.21. On 25 February, Mr Cameron instructed Ms McDonald to take on a welfare liaison role for Ms McKie and requested that she visit her at her flat.[20] Ms McKie found Ms McDonald's visit on Thursday 27 February extremely upsetting as she felt she was being encouraged by her to change her story and to admit that she had been in the house. When Ms McDonald left Ms McKie telephoned her father and he spoke to Mr Cameron and demanded that he see him the following day.[21]

Mr McKie

8.22. Mr Heath's diary[22] refers to telephone calls from Mr McKie prior to his conversations on 20 February and Mr O'Neill thought[23] that Mr McKie had been with Mr Thomson when he was telephoned by Mr Thomson on 17 February. Mr Thomson made no mention of this and it would appear that Mr McKie's main involvement began after Ms McDonald's visit to Ms McKie.

17 CO_4025
18 CO_1718
19 CO_2219 Mackay enquiry statement of Ms McKie
20 CO_1163 Mackay enquiry statement of Ms McDonald
21 CO_2219 Mackay enquiry statement of Ms McKie
22 AC_0003
23 FI_0120 para 17 Inquiry Witness Statement of Mr O'Neill

8.23. Mr McKie's statement to the Inquiry did not go into detail about this period but in his statement to the Mackay enquiry he indicated that his daughter was very distressed after the visit from Ms McDonald and it was at this point that he decided that he should become involved.[24]

8.24. Mr Cameron recorded his meetings with Mr McKie and Ms McKie in a report of 3 March to the Deputy Chief Constable Mr Richardson.[25] The narrative that follows is taken from that report.

8.25. On 27 February, the day that Ms McDonald visited his daughter, Mr McKie telephoned Mr Cameron who was known to him and Mr Cameron agreed to meet him the following day. At the meeting Mr McKie expressed a number of concerns namely that:

- There was a possibility of a mistake having been made by the Identification Bureau in the crime scene examination of 43 Irvine Road.
- He had been advised by someone other than his daughter that a video of the scene showed an object in a different place from photographs subsequently taken.
- His daughter had been interviewed by a number of senior officers and some of them had inferred she might not remember being in the house due to stress.
- He intended to take it further because he felt she was being subjected to undue pressure as a result of not accepting that a fingerprint found at the scene was hers.

8.26. Mr Cameron advised Mr McKie that two additional examinations of the door surround had been undertaken, one in the presence of his daughter, and "SCRO fingerprints" had on both occasions identified the print in question as hers.

8.27. Mr McKie asked Mr Cameron not to rule out the possibility of his daughter's print being put at the locus of the murder by someone else. Mr Cameron advised him of the seriousness of this allegation, and Mr McKie said he did not wish to make any complaint at that point and that he wished their conversation to remain confidential.

8.28. Later in the day when phoning Mr Cameron to make arrangements for Ms McKie to meet him again, Mr McKie said he had checked with a fingerprint expert who had advised him it was possible for his daughter's fingerprint to be placed at a murder scene by someone else.

8.29. Mr McKie indicated to the Inquiry that at the very beginning he gave his daughter a hard time because he believed that fingerprints were infallible, but eventually he came to believe that she was speaking the truth.[26]

Meeting of Ms McKie and Mr McKie with the Divisional Commander

8.30. On Saturday 1 March Ms McKie and Mr McKie met Mr Cameron in his office. Mr Cameron noted that Ms McKie accepted the mark was hers and stated she definitely had not been beyond the porch. Mr Cameron noted her as having said

24 CO_2402 Mackay enquiry statement of Mr McKie
25 CO_1719
26 Mr McKie 15 October page 115

that one solution to the mystery could be that her print was lifted from the tin and transferred to the house.[27]

8.31. In her Mackay enquiry statement[28] Ms McKie said that she was becoming desperate and trying to think of every possible permutation which could account for her mark being in the house. Thinking of her mother doing 'DIY' led her to ask if the door facing was original.

Follow up by the police

8.32. Mr Cameron reported that he and Mr Orr discussed "the aspersions made by Ms McKie" and the sequence of events, noting in particular that the tin had been handled by Ms McKie and Mr Shields on 14 January, but not removed from Mr Asbury's home on that date, and the fact that Y7 was found on the door-frame that same day.[29]

8.33. On 6 March Mr Cameron had a further meeting with Ms McKie which was about her return to work.[30]

8.34. By this time, as noted above, Mr Orr had received the detailed Crown Office instructions conveyed in the procurator fiscal's letter of 3 March.

Commentary

8.35. As Mr McAllister observed to the Inquiry, Ms McKie's position was "consistent throughout".[31] She maintained that she had not been in the house beyond the porch.

8.36. Both the police and Ms McKie believed that Y7 must have been made by her. Despite being schooled to believe that fingerprint evidence was infallible, the police had arranged for the identification to be checked by SCRO and although they, and therefore Ms McKie, understood that more checks had been undertaken than was in fact the case, there had been three new comparisons, by Mr Mackenzie, Mr Dunbar and Mr Halliday. SCRO "categorically"[32] stated their position and, to the recipients of the information it now seemed unassailable; the mark was Ms McKie's. The subtleties of the various comparisons and the fact that some of the examiners did not satisfy the legal standard of 16 points were not conveyed to the police.

8.37. Crown Office proceeded on the basis of the information supplied by the police to the procurator fiscal. Crown Office also accepted SCRO's position. Extensive inquiries were instructed but those inquiries proceeded on the hypothesis that Y7 had been correctly identified. It is not possible to say with any certainty what might have happened had SCRO provided to the police, and in turn to Crown Office, a comprehensive summary of the various comparisons that had been carried out highlighting in particular the spread of opinion among the examiners as to the number of matching characteristics[33] and the complexity of the mark. However, it is

27 CO_1719
28 CO_2219 Mackay enquiry statement of Ms McKie
29 CO_1719
30 CO_2219 Mackay enquiry statement of Ms McKie
31 Mr McAllister 16 June page 58
32 CO_1716 para 30
33 See chapter 7 para 192

the case that in the absence of a comprehensive summary Crown Office was not alerted to any need to check whether the identification was robust and correct.

8.38. Other consequences flowed from the acceptance of SCRO's position.

8.39. In particular, the situation became more serious for Ms McKie. She began to look for explanations as to how her mark could have got there without her having been in the house to make it. This search for explanations on her part led to further difficulties given the nature of the alternatives. Mr McKie put it this way: "We were looking at all sorts of solutions to this, even stupid solutions like some wood that perhaps Shirley had used in her house had been left in Marion Ross's house."[34] The evident 'stupidity' of some of the explanations advanced only served to reinforce the perception of others that she was not telling the truth. What is more, it was at this stage that the 'planting' explanation entered the narrative. Almost immediately it was seen as an "aspersion", since it implied malpractice by someone, and it was an extremely serious allegation to make in any context, let alone in relation to a murder investigation in which fingerprint evidence was crucial.

8.40. Mr McKie said that he recognised that the police wanted a resolution to the situation because Ms McKie's refusal to accept that she had been in the house was not helping the murder investigation. The consequence of this was that both Ms McKie and he felt that the police were in opposition to them, a situation that continued until after Ms McKie's trial.[35]

March 1997 – further developments

Police implementation of the Crown instructions

8.41. Mr Malcolm appears to have been given responsibility for the detailed implementation of the instructions from Crown Office. He prepared a report to the procurator fiscal dated 1 April 1997, countersigned by Mr Orr[36] which summarised the results of the investigations.

8.42. Interviews with log-keepers: the report narrated that fifty police officers and two scene of crime officers had been interviewed. It mentioned that for various reasons the scene log was not the quality of document that it might be. The only reference to Ms McKie in the log related to 9 January when she and Mr Shields had been recorded as arriving at 19:45 and departing at 19:47 and as being in the porch only. The report also referred to the evidence of Police Constable Mark Lees and Ms McKie about her attendance at the house on 11 January to collect and return the log and noted that Mr Lees was adamant that Ms McKie did not enter the porch, far less the house, during these two visits and that Ms McKie claimed to have only entered the porch.[37]

8.43. Ms McKie's access to keys: the report referred separately to evidence from a production officer that Ms McKie had borrowed keys on two occasions whereas her statement of 14 February had mentioned having done so on only one occasion.[38]

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34 Mr McKie 15 October page 110
35 Mr McKie 15 October pages 112-114
36 CO_0998 and in the Precognition for the Asbury trial, CO_3850 pdf page 60ff
37 See chapter 14
38 The borrowing of the keys is considered in chapter 14.

8.44. As regards fingerprint evidence, Mr Malcolm stated that Y7 had "indisputably been identified" as that of Ms McKie and that would be the evidence of the SCRO experts, this being an implicit reference to a joint report by Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna dated 27 March 1997.[39] Mr Malcolm recorded that he sought an opinion regarding what the person might have been doing to leave the fingerprint in the position in which it was found. He was told that in the first instance the opinion was that the bathroom door was off. In the second, a person looking from outside the door, leaning on the right hand door standard with their left hand to gain balance or purchase when peering round the door-frame or round/over some obstruction, e.g. another person, could have left the print in that position. However, the report continued, the fingerprint officers were not prepared to include such an opinion in their report. The joint report contained a statement regarding the orientation of the mark but no discussion as to the manner in which it may have come to be on the door-frame.[40]

8.45. Clarification by Identification Bureau: Mr Malcolm attached a memo by Mr Hogg dated 14 March 1997[41] detailing the finding of marks at the house. Mr Malcolm noted that Mr Hogg was not in a position to offer an opinion in evidence as to what the person was doing when the mark was deposited but he was of the opinion the door was off. "Significantly" it went on "this means that the print may not have been present when the aluminium powder examination was carried out."[42]

8.46. Forensic testing was carried out by Mr Keith Eynon, Deputy Principal Scientist at the Strathclyde Police Forensic Science Laboratory. Mr Malcolm's report referred to two matters being addressed. The first was examination of blind samples of fingerprint impressions in black and aluminium powder. This was an experiment to see if there was any way of telling whether Y7 was placed before or after the first examination with aluminium powder.[43] The experiment was inconclusive. The second related to the McKies' suggestion that the door-frame may have been a piece of wood that perhaps Ms McKie had used in her house and that had come subsequently to be in Miss Ross's house. Mr Eynon's laboratory tests established that the timber in the door-frame on which Y7 was found was similar to the timber in other parts of the hallway.

8.47. The relevant dates concerning the finding of the tin were clarified. It was first seen on 14 January but not seized until 22 January when Mr Asbury was arrested. Fingerprint examination of the tin revealed a print of Miss Ross but did not reveal fingerprints of Mr Shields or Ms McKie.

8.48. Mr Malcolm reported that at his interview with Ms McKie on 31 March she had been told that enquiries to date had revealed no record which would account for

39 DB_0004
40 See chapter 9
41 FI_0034 paras 38-43 Inquiry Witness Statement of Mr Hogg. CO_1460, copied in the Precognition, CO_3850 at pdf page 70.
42 This evidence concerning the door being on or off, including Mr Hogg's evidence about it, is considered in chapter 3.
43 Mr Hogg 17 June page 12 and FI_0034 para 55 Inquiry Witness Statement of Mr Hogg

a visit by her to the locus. She was informed that her claim that her fingerprint had been placed at the locus illegally by a person unknown would be tested in the High Court. She repeated her belief that the tin played a part in this scenario and was "obviously surprised that the timescale contradicted her but claimed that only added to her confusion." The basic essentials of her statement, the report stated, were that she accepted the print was hers but claimed it was 'planted'. She maintained she had never been in the house. The report indicated that Ms McKie "also displayed knowledge of a theory that the door had to be off for her print to be in the position found. She feels strongly that an 'independent' expert would support her feelings that the print was 'planted'." It was noted that "she did not allude to any of the other theories previously mentioned by her and was not told of specific lines of enquiry which counter them."

8.49. Mr Malcolm contrasted the findings of his investigations with the accounts give by Ms McKie over time.

- The report stated that Ms McKie, on first being informed of the discovery of Y7, denied that the fingerprint was hers. This, it was said, "can be rebutted by scientific evidence", presumably alluding to the fingerprint evidence.
- Ms McKie later accepted that the fingerprint was hers but claimed "it was 'planted' by mistake when an attempt was made to plant Asbury's fingerprint, her print having been removed from the tin." This, the report stated, was rebutted by chronology. Y7 was found at the murder scene on 14 January but the tin was not seized and examined until 22 January.
- Ms McKie 'theorised' that wood thrown out during work at her father's house might have had her fingerprint on it and might have been used in refurbishment work at Miss Ross's house. This was rebutted by the sequence of events from the Identification Bureau examination and by the scientific evidence from Mr Eynon.
- Ms McKie's claim it was all a "terrible mistake" could be rebutted by scientific evidence.

8.50. The report concluded with the following observations:

> "The bare essence of [Ms McKie's] assertion is criminal conduct on the part of an unknown person.
>
> Conversely she is a liar, however, to date no evidence has been found to put her inside the house. The possibility therefore exists that some other individual is lying also."

Mr Malcolm's report concerning 'the previous incident'

8.51. Mr Malcolm provided a second report dated 3 April, countersigned by Mr Orr, dealing with the 1993 incident.[44] The belief in 1997 was that the 1993 incident provided a precedent for Ms McKie not telling the truth when her print was found where it ought not to have been but, as explained in chapter 6, in the light of a subsequent discovery that belief was without foundation.

44 CO_1457

Mr Heath

8.52. Mr Heath had been away on other business, returning to the division around 31 March. He told the Inquiry of the difficult atmosphere that existed. Ms McKie was denying that Y7 was hers despite its being checked "many times" and there was a growing awareness she had made "several" visits to the house, which he accepted in oral evidence might mean only one other to return the log to the locus.[45] It was emerging that the log-keeping had not been carried out properly and members of his team were coming to him mentioning 'the previous incident' involving Ms McKie. Fingerprint evidence was going to be a significant part of the evidence in the Asbury trial and the fact that one of his officers was challenging a mark would therefore create significant complications. The clear fingerprint evidence, at the time, was that Ms McKie had been where she should not have been, and it seemed to him, and he suspected to many other officers in his team, that the force was tolerating what the evidence indicated was a serious mistake on her part. Added to this, his recollection was that rumours were circulating that Ms McKie had indicated that her print had been 'planted' at the scene by colleagues. Morale was affected by this and he personally felt undermined. He began to consider leaving the CID.[46]

The Precognition is completed and sent to Crown Office

8.53. Crown Office sought an update by letter dated 26 March and was informed that the Precognition would be submitted on 3 April.[47] The precognition officer who prepared it was Ms Berry and it was dispatched to Crown Office on 2 April and received there on 3 April.[48]

8.54. The Precognition was a self-contained series of volumes containing the witness statements taken by Ms Berry and expert reports. It opened with a narrative of the facts of the case[49] and an analysis of the critical evidence,[50] both prepared by Ms Berry, and included her recommendation that proceedings be taken against Mr Asbury.[51]

8.55. Bound as part of the Precognition[52] were copies of Mr Malcolm's report dated 1 April 1997 with Mr Hogg's memo of 14 March, the report by Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna regarding Y7 dated 27 March 1997[53] and Ms McKie's statement taken by Mr Malcolm on 31 March.[54]

8.56. The analysis of the evidence identified a sufficiency of evidence based on:

(i) the print on the gift tag (i.e. XF) attached to the boxed soap set purchased in 1996;

(ii) the partial prints of Mr Asbury and Miss Ross on the tin (i.e. QI2);

45 Mr Heath 9 June pages 74-75
46 FI_0013 para 295ff Inquiry Witness Statement of Mr Heath
47 CO_4024
48 CO_4021
49 CO_3850 from pdf page 43
50 CO_3850 from pdf page 53
51 CO_3850 pdf page 55
52 CO_3850
53 DB_0004 (from pdf page 68 in CO_3850)
54 CO_3850 from pdf page 73

(iii) evidence that the money in the tin was folded in a way considered unique to Miss Ross; and

(iv) Mr Asbury's disappearance after the murder.

8.57. Ms Berry's analysis was that the "damning evidence" was the fingerprint evidence relating to (1) the finding of Mr Asbury's print on a gift tag in Miss Ross's house (i.e. XF) and (2) the finding of her print on a tin containing money in his bedroom (i.e. QI2 Ross). Both Ms Berry and Mr McMenemy highlighted the difficulty posed by the disputed identification of Y7, Ms Berry observing:

> "If this situation cannot be resolved before this case comes to court, the credibility of the Fingerprint Officers will undoubtedly be called into question, probably blowing the only substantial evidence we have in this case apart."[55]

8.58. The Precognition included a reasoned note by the Senior Procurator Fiscal Depute, Mr McMenemy[56] endorsing the recommendation that Mr Asbury be prosecuted for murder.

8.59. Mr McMenemy highlighted that the chronology relating to the recovery of the tin contradicted Ms McKie's theory that Y7 was explicable as a 'plant' taken from the tin. He mentioned that so far Ms McKie had been interviewed by senior police officers, "authority figures", and that as it might be that she had disobeyed an order he suggested that he precognosce her to discover whether or not she would stick to the story and also to see if a more sympathetic approach might bring about a change of heart.

Ms McKie's account of her interview with Mr Malcolm and the content of the statement

8.60. Ms McKie's own account of her interview with Mr Malcolm was that she met him, by arrangement, on 31 March to answer questions from the procurator fiscal which appeared to focus on how she could account for her fingerprint being at the locus. She tried to "explain the inexplicable" suggesting various theories, but these were dismissed. She was asked about her visits to the locus and about her movements generally at the time of the murder. She was upset as it seemed as if she was being considered a suspect. She was informed that the procurator fiscal wanted to make sure she knew what perjury was and she replied that she did and that she was telling the truth. She was, she says "quite frankly terrified."[57]

8.61. A copy of the statement noted by Mr Malcolm was included in the Precognition submitted to Crown Office.[58] It includes this statement: "I would like an expert unconnected to the enquiry to re-examine the fingerprint."[59]

55 CO_3850 pdf page 54
56 CO_3850 from pdf page 56
57 FI_0071 para 75 Inquiry Witness Statement of Ms McKie and CO_2219 Mackay enquiry statement of Ms McKie
58 CO_3850 from pdf page 73
59 CO_3850 pdf pages 73-76

Commentary

8.62. The situation had now deteriorated for Ms McKie.

8.63. The police had carried out extensive investigations on the instructions of Crown Office. The identification of Y7 as her print was now attested by the joint report dated 27 March 1997 by four SCRO examiners. Despite the reference in her statement of 31 March to a desire to have the mark re-examined she was known by then to have accepted that Y7 was her mark. This is considered further below in the context of the precognition taken from her by Mr McMenemy. Such explanations as she had been able to suggest had been investigated and rebutted.

8.64. The fact that the police were instructed to investigate the previous incident in 1993 involving Ms McKie is illustrative of a hardening of attitude towards her. The lack of resolution regarding Y7 was viewed as potentially undermining the prosecution of Mr Asbury.

April 1997 - Indictment and further enquiries

8.65. Given the time limits fixed in Scots law for trials, the indictment had to be served on Mr Asbury by 10 April and, accordingly, Crown Office was working to a short deadline.

8.66. The potential difficulties with Y7 were immediately appreciated, as is apparent from the handwritten note from the duty Advocate Depute, Mr Moynihan, of 3 April 1997.[60] This note recorded that he had drawn the matter to the attention of the Lord Advocate[61] to inform him of the position and it instructed certain further enquiries including that Mr Asbury be indicted in the High Court. It is evident from this and another, undated, note[62] that a concern of Crown Counsel at this point was that Ms McKie might have moved the tin from the house of the deceased to the house of the accused.

8.67. Within Crown Office the task of preparing the indictment, and hence preparing the case for trial, was assigned to Ms Gillian Climie, a procurator fiscal in the High Court Unit.

8.68. The investigations instructed in Crown Counsel's note of 3 April were reflected in a letter dated 7 April 1997[63] from Ms Climie to Ms Berry which also contained instructions as to other enquiries and aspects of preparation of the case. The letter recorded that Crown Counsel was giving further consideration to the fingerprint evidence and meantime asked Ms Berry for a response to the points raised in Mr Gallacher's letter of 28 February namely whether the door-frame had been removed, whether any opinion could be given by scene of crime officers as to the age of Y7, and what exactly the opinion of scenes of crime was as to how the print was deposited. "Is it more likely than not that the door was off? If so, can the degree of likelihood be expressed?"

60 CO_4023A. The involvement of Mr Moynihan, Senior Counsel to the Inquiry, in the preparation for the prosecution of Mr Asbury was the subject of my decision dated 16 March 2009 URL: http://www.thefingerprintinquiryscotland.org.uk/inquiry/files/2009-03-17%20Chairmans%20Decision%20regarding%20the%20Position%20of%20Senior%20Counsel%20to%20the%20Inquiry.pdf

61 Then Lord Mackay of Drumadoon

62 CO_4023

63 CO_4003

8.69. With a letter dated 9 April Crown Office sent the indictment to the procurator fiscal for service on Mr Asbury.[64]

8.70. A further detailed letter dated 11 April and stamped as received that day was sent by Ms Climie to Ms Berry following Crown Counsel's further consideration of the fingerprint evidence in general and in relation to Y7.[65] The letter took into account the further enquiries recommended by Mr Moynihan[66] and was seen in draft by Mr Drummond[67] and Mr Moynihan.[68] It set out an extensive list of specific instructions from Crown Counsel concerning Y7 and other instructions in relation to the fingerprint evidence in general.

8.71. Among the instructions, Mr Hogg was to be precognosced on various matters including his opinion as to whether the door was on or off when Y7 was deposited, the age of the print, and the suggestion that Y7 was "lifted" from the tin and transferred to the door-frame. It noted "It is, of course, appreciated that the planting theory does not hold water given the chronology of events. Crown Counsel's concern is that Y7 found at the locus is that of [Ms McKie], she denies being at the locus (which, *prima facie,* suggests that she is not telling the truth) and she happens to have been one of two officers who stumbled on the tin (a highly incriminating piece of evidence against the accused) on 14 January."

8.72. Ms McKie was also to be precognosced, by Mr McMenemy with another legal member of staff present. The circumstances regarding the print were to be fully explained to her and she was to be told there was scientific evidence showing that the frame was part of the original house. She was to be given the opportunity to accept her presence at the locus and to explain it. If she continued to deny her presence she was to be left in no doubt of the risk which she ran in giving such evidence on oath "in the face of apparently irrefutable evidence showing that she had touched the door frame." She was also to be asked if she was aware of any actual evidence as opposed to speculation about the 'theory' of planting and about the 1993 incident. The letter stated "in the event that [Ms McKie] maintains her position on oath…it is essential that all relevant evidence is available to demonstrate to the jury the untruthfulness of this. If the jury accept [Ms McKie's] evidence then the integrity of the science of fingerprinting (on which this case depends) is put into question."

Ms McKie precognosced

8.73. Ms McKie was precognosced by Mr McMenemy on 16 April. She said she was asked the same questions as before and advised that the procurator fiscal would be telling the defence solicitors about her position.[69]

8.74. Mr McMenemy accepted it could be said that during the interview with Ms McKie he was trying to "burst" her and to get the truth out by probing her. He could see that she was in a very difficult position as she was either facing disciplinary

64 CO_3995
65 CO_3989
66 CO_4023 and CO_4023A
67 CO_3990
68 CO_3988
69 FI_0071 para 75 Inquiry Witness Statement of Ms McKie and CO_2219 Mackay enquiry statement of Ms McKie

proceedings for going into the house or she was going to the High Court to repeat under oath that she had not been in the house and as a result facing the possibility of proceedings against her for perjury. Mr McMenemy could see that she was isolated and no one, Mr McMenemy included, believed her. He discussed with her what her attitude, as an experienced police officer, was to fingerprint evidence and she said that it was "basically conclusive evidence". Mr McMenemy told her that that was where her colleagues were coming from in relation to Y7.[70]

8.75. That is reflected in a passage in the precognition taken by Mr McMenemy:

> "In my view it was conclusive evidence, well-nigh infallible. Accordingly, I accepted the fingerprint detected on the door-frame as mine but I cannot explain how it got there."[71]

Mr Heath

8.76. Mr Heath said he left a social event on 4 April at which Ms McKie was present because he could have been placed in a compromising position. He was later informed of unrest caused by remarks made that night by Ms McKie including a suggestion that various people in Strathclyde Police were out to get her.[72] He decided to submit a report to Mr Thomson and did so on 7 April, noting in it that he was doing so in an effort to convey the likely effect of Ms McKie's position on the trial, the current effect on the division's morale, and the likely effect on the public perception of Strathclyde Police "and fingerprint evidence in general" should Mr Asbury be acquitted or found not proven. His report noted that Ms McKie's 'planting' suggestion "infers a conspiracy by Strathclyde Police in attempting to pervert the course of justice" in the murder case and indicated his concerns for the trial. He stated that if asked at the trial his opinion as to Ms McKie's position on the fingerprint identification there could only be one answer "since all of the other possibilities regarding the presence of her fingerprint have been eliminated, and her account of where the fingerprint was allegedly lifted from is not feasible." He would state that Ms McKie was in his opinion a liar. [73]

8.77. Mr Heath intimated that he wanted to leave the CID as a result of the whole matter. He was transferred to a post in the Force Inspectorate in May 1997 only returning to Kilmarnock on promotion in 2000.[74]

Commentary

8.78. It has already been observed that in her statement of 31 March, Ms McKie was noted as having said that she would have liked "an expert unconnected to the enquiry" to re-examine the fingerprint.[75] Her perception that fingerprint evidence was "well-nigh infallible" was the prevailing view at that time and the Crown did not pursue re-examination by an external expert. An independent expert was instructed on behalf of Mr Asbury for his trial, as noted below.

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70 Mr McMenemy 11 June page 135ff particularly at page 138
71 CO_3852 pdf page 146
72 FI_0013 paras 308–310 Inquiry Witness Statement of Mr Heath
73 FI_0013 paras 311–312 Inquiry Witness Statement of Mr Heath and CO_1721
74 FI_0013 para 313 Inquiry Witness Statement of Mr Heath
75 CO_3850 pdf pages 73-76

8.79. Given the certainty that the police understood to be attached to the identification of her mark, and the fact that her strongest alternative explanation for the presence of her mark alleged malpractice on their part, it is not surprising that the attitude of the senior officers towards Ms McKie did harden. Mr Shields, her police 'neighbour' with whom she had worked on more than one occasion, said that his relationship with her changed at the stage when she suggested planting.[76]

8.80. There is no evidence that the police were 'out to get' Ms McKie. Nor is there any evidence of any conspiracy involving the police and SCRO falsely to identify fingerprints in the case. The evidence is that the police went out of their way to have SCRO check the identification and methodically examined the explanations that she advanced.

8.81. Ms McKie found the questioning at the interviews difficult but the questions put to her during these interviews by Mr Malcolm and Mr McMenemy reflected what Crown Office had instructed and were understandable given that the universal view at the time, including that of Ms McKie and her father, was that SCRO was right.

8.82. From Ms McKie's point of view, she was in an impossible situation.

End of April until the trial in *HMA v Asbury*

Ms McKie

8.83. At the end of April Ms McKie was in discussion about options for her return to work, but this changed with developments in May.[77]

8.84. Mr Asbury was represented by Mackintosh & Wylie. It is outwith the remit of the Inquiry to consider in detail the arrangements for disclosure to the defence in connection with his trial[78] but it appears that Ms McKie was on a list of witnesses provided by the Crown and that, in facilitating delivery of a 'precognition letter' to her, Mr Heath suggested to the solicitors' firm that they might wish to precognosce her themselves rather than through a precognition agent.[79] Ms Dowdalls, a partner in the firm precognosced Ms McKie on 5 May with her father present.[80]

8.85. A few days later, on 8 May, Ms McKie was served with an Investigation Form under the Police (Conduct) (Scotland) Regulations.[81] She described herself as being "absolutely devastated" and after this she could not think about work and remained on sick leave. Between then and 28 May, the day she gave evidence at the trial, she was "in the depths of despair".[82]

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76 Mr Shields 9 July pages 20-22

77 FI_0071 para 75ff Inquiry Witness Statement of Ms McKie and CO_2219 Mackay enquiry statement of Ms McKie

78 The Inquiry Chairman 9 June page 115

79 Mr Heath 9 June pages 79-80; and FI_0013 paras 304- 305, 314, 317 Inquiry Witness Statement of Mr Heath, CO_1172 Mackay enquiry statement (supp) of Mr Heath and CO_2221 Mackay enquiry statement of Ms Dowdalls

80 FI_0071 paras 76–79 Inquiry Witness Statement of Ms McKie and CO_2219 Mackay enquiry statement of Ms McKie

81 A disciplinary investigation led by Chief Inspector Wilson was set up that day in relation to possible misconduct by Ms McKie. Mr Wilson reported on 26 August 1997 – see chapter 10 paras 35-36. The disciplinary proceedings are not a matter considered by the Inquiry.

82 FI_0071 para 80 Inquiry Witness Statement of Ms McKie and CO_2219 Mackay enquiry statement of Ms McKie

Preparations as regards the fingerprint evidence

The defence

8.86. Mackintosh & Wylie instructed Mr Malcolm Graham, a retired fingerprint examiner from Lothian and Borders Police, to provide a report in relation to the fingerprint evidence. He agreed the SCRO identifications of the critical fingerprints XF, QD2, QI2 (both Mr Asbury and Miss Ross) and of Y7.[83] It should be noted, though, that in oral evidence he clarified that he was not working to the 16-point standard in coming to his view on Y7 or QI2 (Ross and Asbury): "I never went to 16 points. All my examinations are to my satisfaction."[84]

8.87. The report specifies that in relation to Y7 he viewed two actual size photographs of it in a production book (Book "L"). One photograph was dated 16 January and the other 18 February. He thought that because of the fragmentary nature of the mark, the second photograph would have been taken to try and enhance it. He said that he was asked to consider the possibility that the mark had been lifted from the tin and that he was able to say "with certainty" that that did not happen for these reasons:

- The tin had been well handled and a clean area left after the removal of a mark would be very noticeable.
- The fragment of the mark on the door-frame was "an entity surrounded by clear space". There were no extraneous fingerprint ridges. The surface of the tin had no areas with a single mark surrounded by clear space.
- Transfers of a mark can only be done before it is developed with powder. After development with powder it can be lifted but not transferred.
- Before the tin was dusted it would be almost impossible to identify a suitable impression for transfer.

8.88. Mr Graham noted that although fingerprints could be transferred from one surface to another with the use of adhesive tape, considerable knowledge and skill was required to find a suitable latent impression and transfer it in a manner that did not appear suspicious when developed.

The Crown

8.89. Mr Hogg said that on 8 May Mr McMenemy brought the door-frame to his office for him to examine it in the context of Ms McKie's allegation that the fingerprint had been planted. He told Mr McMenemy that he was not an expert on planting. He said that it appeared to him to be a good print but he could not comment on planting.[85]

8.90. SCRO's preparation of the fingerprint reports for the trial in *HMA v Asbury* is considered in chapter 9.

8.91. There was no note on the Crown Office file of any further involvement by Crown Office between the date of the letter of 11 April[86] and the start of the trial.

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83 DB_0202
84 Mr Graham 9 July pages 109-111 at page 109
85 FI_0034 paras 52–54 Inquiry Witness Statement of Mr Hogg
86 CO_3989

The trial

8.92. The trial proceeded between 16 May and 4 June 1997.

8.93. A summary of the proceedings, with some incidental observations, is in the note prepared by Sergeant Stuart Carle, the police observer.[87]

8.94. The defence did not contest the SCRO evidence regarding the identification of the fingerprints. The focus was not on the identity of the marks, but rather on how they got to the place where they were found.

8.95. Mr MacPherson and Mr Stewart both gave evidence but neither was cross-examined by the defence.[88]

8.96. Ms McKie was called by the Crown as a witness on 28 May 1997. There are both the summary of her evidence in Mr Carle's note[89] and transcripts of her evidence.[90] Her evidence covered the finding of the tin in Mr Asbury's house[91] and also the 1993 incident.[92]As for Y7, she did not accept that the fingerprint was hers because she said that she had not been in the house. She accepted that she had never known fingerprint evidence to be incorrect and she had no explanation for the print being identified as hers but she repeated her denial that she had been in the house.[93]

8.97. Mr Graham was called as a defence witness and he confirmed in cross-examination that he had no doubt about the identifications of QI2 as the print of Miss Ross[94] and Y7 as that of Ms McKie.[95] The thrust of his evidence at the trial was directed to the possible means by which Miss Ross's fingerprint could have been planted on the tin, the possibility that he left standing being that it could have been placed on the tin by contact with the corpse in the mortuary.[96]

8.98. The advocate depute in his address to the jury is noted as stating that the starting point of the Crown case was the fingerprint evidence relating to XF and QI2 Ross.[97] That being so, he had to face up to Y7 and to assure the jury that they could have trust in fingerprint evidence. His submission was that Ms McKie was not telling the truth, she had done something like this before and had dug herself into a hole and did not know how to get out of it. He is noted as describing Ms McKie as a rogue policewoman who had added an unnecessary burden to the case but that her print did not cast doubt on the integrity of the police operations.[98] In conclusion he is noted as having said: "Fingerprint evidence is irrefutable and this is not an exception in this case."[99]

87 CO_0215
88 CO_0215 paras 70.14 and 71.3, the transcript of their evidence is SG_0523.
89 CO_0215 para 88
90 LM_0058 and LM_0111 (each has gaps and therefore they require to be read together)
91 LM_0058 and LM_0111 pages 29-33 ,54-55
92 LM_0058 and LM_0111 pages 40-41
93 LM_0058 and LM_0111 pages 35-36, 41-45
94 CO_0215 para 126.6
95 CO_0215 para 126.7
96 CO_0215 para 126.2-3
97 CO_0215 para 129.4
98 CO_0215 paras 129.16–129.18
99 CO_0215 para 129.17

8.99. The defence closing address to the jury did not contest the identification of QI2 Ross but argued that the print had been placed on the tin when the tin had been taken to the mortuary.[100] Y7 was cited as showing that fingerprints could be disputed. If Ms McKie was not telling the truth then a second person must also have lied about the log, which only went to show that the production register relating to the custody of the tin could also be erroneous.[101]

8.100. The jury returned a verdict of guilty by majority.[102]

Commentary

8.101. The basis on which the jury reached their verdict is not known. The defence did not focus on the identification of the fingerprints but on their deposition. There was no attack on the work of SCRO at the trial. Their identifications were supported by the evidence of Mr Graham for the defence.

8.102. It was not until the trial in *HMA v McKie* that attention focussed on SCRO. As Mr McKie said to the Inquiry with reference to the period prior to the involvement of Mr Wertheim, down to about March 1999, "It has to be remembered at this time we were not claiming the SCRO experts were wrong in identifying the print as Shirley's because our previous police training had lulled us into accepting that such experts were infallible …The various double checks we believed had been carried out only strengthened our conviction that while the print was hers something must have gone seriously wrong. Our sole focus was on the belief that the print, although hers, must have been forged or placed in the house accidentally or transplanted there by person unknown… probably by other than the experts."[103]

100 CO_0215 paras 130.7, 130.11-12 and 130.23
101 CO_0215 para 130.14
102 CO_0215 para 133
103 Mr McKie 15 October page 7 and FI_0181 para 45 Inquiry Witness Statement (Part 1) of Mr McKie

CHAPTER 9

PREPARATION OF REPORTS BY SCRO IN *HMA v ASBURY*

Introduction

9.1. This chapter considers the general arrangements for preparation of reports and associated productions for court by the SCRO fingerprint examiners in 1997-1999 at the time of the Asbury and McKie trials and then considers the preparation of the specific productions for *HMA v Asbury*.

The preparation for trial: general processes

9.2. SCRO fingerprint examiners typically prepared the following fingerprint related productions for court:

(i) a joint report which reported their finding that a mark had been identified with reference to prints on a fingerprint form; and

(ii) a book of productions containing a photograph or lift of the identified mark and a "charted enlargement" of part of the mark and part of the print marked up to show sixteen points in sequence and agreement between the mark and print.

9.3. The relevant fingerprint form would also be lodged as a production.

9.4. The joint report, the book of productions and the fingerprint forms would be signed by the same four SCRO fingerprint examiners. Any one or more of them could be called to give evidence in court and speak to these productions. To take *HMA v Asbury* as an example, the examiners produced in respect of Y7:

(i) a joint report dated 10 April 1997;[1]

(ii) a book of productions referred to in the report (book marked "L"),[2] that contained two photographs of Y7 and a charted enlargement.

The prosecution also produced the ten-print form for Ms McKie[3] referred to in the joint report.

9.5. As will be discussed, some procedures followed by SCRO, particularly in relation to the production of charted enlargements, were unique to SCRO.

Process followed

9.6. If a case was coming to trial the fingerprint bureau would generally be asked by the procurator fiscal to prepare material for court[4] but the police may sometimes have made the request.[5]

1 SG_0409
2 ST_0006h
3 ST_0004h
4 FI_0046 para 109 Inquiry Witness Statement of Mr Mackenzie
5 FI_0036 para 96 Inquiry Witness Statement of Mr Stewart

9.7. When the request was received a clerk would prepare a form[6] which would be passed to the Head of Bureau. According to Mr Stewart, Mr Mackenzie would ordinarily allocate witnesses in a special case.[7] In any event, someone in a management role would decide which examiners would be witnesses.[8]

9.8. Four examiners signed the report. Only two would be required as a matter of law, assuming that the fingerprint evidence had to be corroborated. The third and fourth signatories were included for the purposes of annual leave cover, so that two fingerprint examiners were available at any time to give evidence.[9]

9.9. Mr Stewart thought that the normal practice was to try to allocate cases to examiners who had previously examined the majority of the marks in the case, so that when it came to preparation for court there was no need for examiners to carry out a large volume of new examinations because they had not been party to the initial identifications.[10] However, the examiners who were chosen to be witnesses were not always those who had been involved earlier in the investigation.[11]

9.10. Ms McBride said that one or both of the first two signatories to the report would draft the report and prepare the productions, including any enlargement.[12] Mr Stewart said that the senior expert would allocate tasks among the potential witnesses.[13]

9.11. Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna said that a signatory had to be satisfied that the report and productions were accurate before signing. A signatory had to have compared the identified mark to the relevant prints.[14] It follows that if a signatory had not already compared the relevant marks or prints he would have to do so.[15] If the signatories had already carried out a comparison the approach of the examiners differed. Mr McKenna always carried out a full comparison at report stage, even if he had already compared the marks and prints.[16] If Mr MacPherson, Mr Stewart and Ms McBride had already compared the marks and prints they would not carry out a further comparison when preparing the court report.[17]

9.12. The position was different if a new set of fingerprints had been taken after the initial comparison was carried out, for example if elimination prints were used for the initial comparison and the person in question was thereafter arrested and a new set

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6 SG_0457 is an example
7 FI_0036 para 97 Inquiry Witness Statement of Mr Stewart. For the distinction between a 'volume case' and a 'special case' see chapter 22.
8 FI_0055 paras 62 and 66 Inquiry Witness Statement of Mr MacPherson
9 FI_0046 para 109 Inquiry Witness Statement of Mr Mackenzie
10 Mr Stewart 5 November page 103
11 FI_0046 para 109 Inquiry Witness Statement of Mr Mackenzie
12 FI_0039 para 53 Inquiry Witness Statement of Ms McBride
13 FI_0036 para 99 Inquiry Witness Statement of Mr Stewart
14 FI_0055 para 66 Inquiry Witness Statement of Mr MacPherson, FI_0036 paras 232-234 Inquiry Witness Statement of Mr Stewart, FI_0039 paras 52-55 and 56 and FI_0054 para 97 Inquiry Witness Statement of Mr McKenna
15 FI_0055 para 68 Inquiry Witness Statement of Mr MacPherson and FI_0036 para 102 Inquiry Witness Statement of Mr Stewart
16 Mr McKenna 6 November page 35, FI_0054 para 97 Inquiry Witness Statement of Mr McKenna
17 FI_0055 para 67 Inquiry Witness Statement of Mr MacPherson and FI_0039 para 55 Inquiry Witness Statement of Ms McBride

of fingerprints was taken. Mr Stewart, Mr McKenna, and Ms McBride would carry out a further comparison based on the new form.[18] Mr MacPherson indicated that he would carry out checks against arrest prints in order to confirm that he could still identify to sixteen points.[19]

9.13. Examiners would refuse to sign a report if they did not agree with its conclusions. Ms McBride recalled an occasion in 2000 when she had refused to sign a report.[20]

9.14. Mr MacPherson explained that joint reports were introduced following the coming into force of section 26 of the Criminal Justice (Scotland) Act 1980.[21] The joint report was "more or less a pro forma".[22] Mr Mackenzie said that standard form joint reports had been agreed with the Crown in the 1980s[23] and a style can be seen, for example, in Annex C to the Crown Office Expert Evidence Manual.[24] The style used by SCRO (1) referred to a life-size image of the mark and the ten-print form for the individual whose mark was identified and (2) narrated that the identification was *illustrated* by enlargements that the officers had prepared showing "Sixteen ridge characteristics in sequence and agreement" (emphasis added).

9.15. Consistent with the 'best evidence' rule[25] the prosecution was required to lodge the original of the ten-print form and also a first generation image of the mark. The life-size image of the mark that was included in the productions was not necessarily the particular photograph that the examiners had studied when the identification was first made but could be another photograph reproduced from the negatives. For example, in relation to Y7, the examiners worked with an image that came to have writing on it[26] but the images included in the production book[27] were unmarked images.

9.16. By 1998 at latest, the Glasgow bureau was unique, not only in Scotland but in the UK, in producing case specific enlargements.[28] In solemn cases (that is cases going for jury trial) the Glasgow bureau automatically prepared case specific charted enlargements primarily because this is what the Glasgow procurator fiscals wanted.[29] It was not only the Glasgow procurator fiscals that requested enlargements. They were requested in *HMA v Asbury* which was a Kilmarnock case involving the Kilmarnock procurator fiscal and Ms Climie of Crown Office in Edinburgh requested enlargements in terms of her letter dated 11 April 1997.[30]

18 Mr McKenna 6 November page 35, FI_0054 para 97 Inquiry Witness Statement of Mr McKenna, FI_0036 para 102 Inquiry Witness Statement of Mr Stewart and FI_0039 para 55 Inquiry Witness Statement of Ms McBride
19 FI_0055 paras 67–68 and 90–91 Inquiry Witness Statement of Mr MacPherson.
20 FI_0039 para 57 Inquiry Witness Statement of Ms McBride, FI_0040 paras 73-85 Inquiry Witness Statement (Supp.) of Ms McBride (and also FI_0043 para 16 Inquiry Witness Statement of Mr Bell)
21 FI_0055 para 10 Inquiry Witness Statement of Mr MacPherson; see chapter 31, para 16ff, for the background to this statutory provision.
22 Mr Stewart 5 November page 105
23 FI_0046 paras 58-59 Inquiry Witness Statement of Mr Mackenzie
24 CO_4342 pdf pages 23-25
25 See chapter 30 para 11ff
26 PS_0002h
27 ST_0006h
28 FI_0114 para 55 Inquiry Witness Statement of Mr Pattison and CO_4305: see also Mr Chamberlain 18 November pages 63-65 and Mr Logan 16 November page 40
29 Mr MacPherson 28 October page 134, FI_0055 para 69 Inquiry Witness Statement of Mr MacPherson and Mr Stewart 5 November page 192
30 CO_3989

9.17. Irrespective of the number of marks identified it was normal practice to prepare only one enlargement per accused in a case. This was because, as the terms of the joint report itself stated, the enlargement was intended to be no more than an illustration or visual aid to be used as required when presenting evidence in court.[31] Though the examiners were using one of the marks in the case, it served as effectively a 'generic' example to enable examiners to demonstrate the method of identification[32] and was not intended by them to be evidence of the comparison or identification.[33]

9.18. The ultimate decision regarding the particular mark to be used was for the prosecution[34] but it could be left to the fingerprint examiner's judgment to select the mark that would provide a good illustration for court purposes.[35] Mr MacPherson's policy was to pick the clearest marks for enlargement[36] and Ms McBride gave evidence to the same effect.[37]

9.19. The 'enlargement' was literally an enlargement of a photographic image of the mark and the print from the ten-print form that were being matched. Sixteen points of similarity were pin-pointed in the mark and print. It was prepared on a joint basis. The experts may each have made their initial decisions based on different combinations of characteristics but for the purposes of preparing the production they would reach a consensus as to sixteen points to be used jointly.[38] Mr Stewart, commenting on this, said: "Regrettably, any time you produced an illustration it was always a compromise between the four experts. We could all have looked at the mark and reached our conclusion based on different characteristics, so what was illustrated had to be a compromise."[39] The use of a joint set of sixteen points was consistent with the purpose of the production being to do no more than illustrate the process and not to certify the means by which each examiner arrived at his or her own initial conclusion. That said, by signing the production each of the four examiners was accepting that he or she would be happy to stand up in court and speak to these sixteen points as points of identity, if asked.[40]

Charted enlargements

9.20. Prior to 1996 SCRO used photographic enlargements. In 1996 a charting PC was purchased[41] and the SCRO officers were told not to use photographic enlargements and instead to use the charting machine.[42] Its use was discontinued by 2000 in the aftermath of the McKie trial.[43] The images that it produced were referred to as 'charted enlargements'.

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31 SG_0375 para 3.11.2ff
32 FI_0039 para 58 Inquiry Witness Statement of Ms McBride
33 FI_0036 para 109 Inquiry Witness Statement of Mr Stewart
34 FI_0045 paras 58-59 and 112 Inquiry Witness Statement of Mr Mackenzie, FI_ 0053 para 165 Inquiry Witness Statement of Mr Dunbar and FI_0036 para 106 Inquiry Witness Statement of Mr Stewart.
35 FI_0046 para 59 Inquiry Witness Statement of Mr Mackenzie
36 FI_0056 para 110 Inquiry Witness Statement (Supp.) of Mr MacPherson
37 FI_0039 para 61 Inquiry Witness Statement of Ms McBride
38 FI_0036 para 108 Inquiry Witness Statement of Mr Stewart
39 Mr Stewart 5 November page 188
40 Ms McBride 6 November page 173
41 SG_0375 para 3.11.2
42 Mr MacPherson 3 November pages 67-68, Mr Stewart 5 November page 116 and Mr McKenna 6 November page 79
43 SG_0375 para 3.11.5 and CO_0307 section 1.1

9.21. There was a number of general complaints about the charting PC on the part of SCRO examiners. It was difficult to use and, in particular, it was difficult to hit the exact place in the image to which the examiner wished to point.[44] It could only enlarge to certain sizes, which meant that it produced images of only part of the mark and part of the print (this being referred to as 'cropping' of the image). It had limited contrast and produced poor quality images, particularly of poor quality marks. It did not provide as sharp an image as a photographic enlargement.[45] There was a further deterioration in quality when the enlargements were printed out.[46] When the image was enlarged, it would pixelate.[47]

9.22. Mr Graham told the Inquiry[48] that the SCRO enlargements that he saw from time to time in his work were "of shocking quality", and, for example, lines would mark features that were not present. Mr MacPherson disagreed with Mr Graham's remarks.[49]

9.23. The complaints that the SCRO examiners had about the charting machine must be seen in context. Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna said that a signatory had to be satisfied that the report and productions (including the charted enlargements) were accurate before signing.[50] Mr MacPherson said that the court productions were as accurate as he could make them and he believed they were accurate.[51] His view was that the quality of the representation of Y7 was acceptable for its purpose and he was satisfied that the chartings were accurate.[52] He had to accept that some enlargements were not so accurate. On being shown Production 99[53] (the book of photographs for QI2 Ross) he accepted that the plotting of point 16 on the charted enlargements had "not quite landed where it should have".[54] He explained that this was the sort of difficulty that occurred with the charting PC[55] but generally his position was that although points may have been a millimetre or so out this did not invalidate the identification.[56] Mr Stewart's evidence was similarly pragmatic: the charting PC may not have been as accurate as a photograph but it did not cause him a problem.[57]

Commentary

9.24. Issues were raised at the trial in *HMA v McKie* about the quality of the SCRO charted enlargements, particularly with Mr Findlay's repeated references to

44 Mr Geddes 26 June page 110ff, 131ff, Mr McKenna 6 November page 47ff at page 50, Ms McBride 6 November page 167ff and FI_0039 para 64 Inquiry Witness Statement of Ms McBride
45 Mr Dunbar 6 October page 142, Mr Stewart 5 November page 111ff, Mr McKenna 6 November page 50 and FI_0036 para 105 Inquiry Witness Statement of Mr Stewart
46 FI_0053 paras 161-162 Inquiry Witness Statement of Mr Dunbar
47 Ms McBride 6 November page 167-168
48 Mr Graham 9 July page 91 and FI_0089 para 41 Inquiry Witness Statement of Mr Graham
49 Mr MacPherson 3 November pages 140-143
50 FI_0055 para 66 Inquiry Witness Statement of Mr MacPherson, FI_0036 paras 108 and 232-234 Inquiry Witness Statement of Mr Stewart, FI_0054 paras 100, 117 Inquiry Witness Statement of Mr McKenna and FI_0039 paras 62, 64 Inquiry Witness Statement of Ms McBride
51 Mr MacPherson 27 October page 93
52 Mr MacPherson 3 November pages 69, 142
53 SG_0131
54 Mr MacPherson 3 November page 145
55 Mr MacPherson 3 November pages 144-145
56 Mr MacPherson 27 October pages 93-94
57 Mr Stewart 5 November pages 111-115, 119-120

"blobs",[58] and these were picked up later in both the HMIC report[59] and a specific report by Temporary Inspector Tatnell.[60] The SCRO examiners told the Inquiry of the problems they experienced when using the charting PC but those problems are not relevant to the fundamental question whether the identifications that they made were correct. The identifications were made by reference to original source materials and not by studying the charted enlargements. The relevance of the charted enlargements, both at the trial in *HMA v McKie* and for the purposes of the Inquiry, was that they focussed the debate among the examiners on specific details. At the time when the productions were first prepared the signatories to the joint reports were satisfied as to their accuracy and prior to the trials of Mr Asbury and Ms McKie no one of them voiced any concern to the Crown about the use of the charted enlargements. In any event, the comparative exercise conducted by the Inquiry has shown that the quality of the charted enlargements is immaterial because the underlying disputes among the experts remained the same irrespective of the particular image being studied.

The fingerprint productions in *HMA v Asbury*

9.25. Having considered preparation in general I now turn to the material prepared for the trial *HMA v Asbury*.

9.26. In a letter dated 17 February addressed to the Chief Constable SCRO Fingerprint Section the procurator fiscal requested preparation of the fingerprint evidence for the case.[61] The SCRO form "Preparation of Fingerprint Evidence"[62] recorded that it was received on 18 February and on 20 February the SCRO witnesses allocated to be witnesses to the trial were Mr MacPherson and Mr Stewart.[63]

9.27. The SCRO form had attached to it a list of the marks to be covered in evidence. Normally the fingerprint evidence would be confined to the identified marks but in this case "Basically, every mark that had been received in the office had to be accounted for in the productions."[64]

Allocation of witnesses

9.28. Mr Mackenzie explained that Mr MacPherson and Mr Stewart were the two most senior fingerprint officers in the office and the names of Mr McKenna and Ms McBride would follow on because of the system, already referred to, for ensuring that there was always holiday cover available for witnesses.[65] Ms McBride was Mr MacPherson's general substitute for evidence at trial and Mr McKenna was Mr Stewart's.[66]

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58 Mr Donald Findlay Q.C., counsel for Ms McKie - see chapter 12
59 SG_0375 section 3.11
60 CO_0307
61 CO_4198
62 SG_0457
63 FI_0046 paras 324-325 Inquiry Witness Statement of Mr Mackenzie and FI_0055 para 62 Inquiry Witness Statement of Mr MacPherson.
64 FI_0055 para 63 Inquiry Witness Statement of Mr MacPherson
65 FI_0046 para 325 Inquiry Witness Statement of Mr MacPherson
66 FI_0055 para 131 Inquiry Witness Statement of Mr MacPherson, FI_0039 para 116 Inquiry Witness Statement of Ms McBride and FI_0054 para 94 Inquiry Witness Statement of Mr McKenna

9.29. Y7 may also have had a bearing on the choice of signatories. Ms McBride said that normal procedure was that those who did not see sixteen points were not included on the joint report.[67] Mr Geddes had been involved in much of the work but had not identified Y7 to 16 points. Mr MacPherson said that the other three witnesses had been involved in identifying Y7, which was known to be disputed by Ms McKie, and bringing them in to QI2 meant that they could deal with the case in its entirety.[68]

Commentary

9.30. The allocation of witnesses to the case *HMA v Asbury* might be explained by the choice of Mr MacPherson and Mr Stewart on 20 February. The consequence was that their substitutes, Ms McBride and Mr McKenna, would be the third and fourth witnesses.

9.31. It is not known if a conscious decision was taken not to use Mr Geddes as a witness in *HMA v Asbury* because he had not identified Y7 to sixteen points. Even if it had been a conscious decision there would have been nothing sinister in that because the practice operated by SCRO at the time was that an examiner who had failed to find 16 points but was not positively disputing the identification could be passed over if other examiners could verify to 16 points.

Preparation of productions

9.32. Mr MacPherson said that for the trial in *HMA v Asbury* he "certainly" prepared all of the productions.[69] That was contradicted by Mr Stewart who claimed authorship of the joint reports on QI2 Ross and Y7 and the productions other than the charted enlargement for Y7.[70] This is immaterial because the joint report was a pro forma and, in any event, each of the signatories had to be satisfied as to the accuracy of all of the productions before they signed.

QI2 Ross: report dated 17 March 1997

9.33. The following material was produced in relation to QI2 Ross:

(i) A report, Production 101,[71] dated 17 March 1997. It was to the effect that QI2 was identified as having been made by Miss Ross based on a photograph of QI2 produced in book "B" and a fingerprint form in the name of Marion Ross.

(ii) Book B contained a photograph of QI2 and a charted enlargement marked to show sixteen points in sequence and agreement between QI2, and the right fore fingerprint of Miss Ross. This was Production 99 in *HMA v Asbury*.[72]

(iii) A fingerprint form in the name of Marion Ross, dated 10 January 1997 was Production 96 in *HMA v Asbury*.[73]

67 Ms McBride 6 November page 105
68 FI_0055 para 131 Inquiry Witness Statement of Mr MacPherson
69 FI_0055 para 162 Inquiry Witness Statement of Mr MacPherson
70 FI_0036 paras 236, 248 Inquiry Witness Statement of Mr Stewart
71 SG_0377
72 SG_0131
73 DB_0142h

9.34. Mr MacPherson said that he prepared the joint report relating to QI2 and the charted enlargement.[74] Mr Stewart agreed that Mr MacPherson prepared the charting but as stated above he claimed authorship of the report.[75]

9.35. Ms McBride and Mr McKenna had not been involved in the initial identification of this mark. Mr McKenna said that he must have first looked at QI2 when signing off the case envelope or signing the report, both of which were being worked on at about the same time.[76] He would have used a glass and possibly a comparator.[77] Ms McBride said she would have followed her normal method of comparison.[78]

XF, QI2 Asbury, QD2 and other Asbury marks: report dated 17 March 1997

9.36. All the marks identified as having been made by Mr Asbury were dealt with together:

(i) The joint report was Production 100,[79] dated 17 March 1997.

(ii) A book of productions marked "A" was Production 98.[80] This was a book containing photographs of marks XF, QD2, QI2 and others, and lifts of WB and WD. In accordance with normal practice only one charted enlargement was produced and it related to XF.

(iii) The joint report referred to a fingerprint form received by SCRO on 27 January. The transcript of evidence from the trial indicates that Production 98 contained prints taken on 22 January.[81] The Inquiry did not recover the original production and has only photocopies of prints that bear to have been taken on 26 January 1997.[82]

9.37. The image of QD2 that was included in Production 98, though a first generation photograph and therefore in accordance with the 'best evidence' rule, was not the same as the image that the SCRO examiners had studied. This was to occasion some confusion later when marks were examined by Danish experts after the McKie trial.[83]

Y7: report dated 27 March 1997

9.38. A report dated 27 March 1997 about Y7[84] was prepared and signed by Mr MacPherson, Ms McBride, Mr Stewart and Mr McKenna. The report confirmed that Y7 was made by Ms McKie on the basis of a comparison of an elimination

74 FI_0055 para 129 Inquiry Witness Statement of Mr MacPherson
75 FI_0036 para 248 Inquiry Witness Statement of Mr Stewart
76 FI_0054 para 113 Inquiry Witness Statement of Mr McKenna; Mr MacPherson signed the case envelope on 14 March 1997 and the report was dated 17 March 1997
77 FI_0054 paras 114-115 Inquiry Witness Statement of Mr McKenna
78 FI_0039 para 129 Inquiry Witness Statement of Ms McBride
79 SG_0352
80 SG_0010h
81 SG_0523 pdf pages 11-12 (Transcript of proceedings, *HMA v Asbury* 27 May 1997 evidence of Mr MacPherson)
82 SG_0349h, SG_0350h and SG_0351h
83 See chapter 27 para 14ff
84 DB_0004

form received from Strathclyde Police on 7 February 1997 with a photograph of Y7 received from Strathclyde Police on 16 January 1997. The report made no reference to a book or charted enlargement unlike the other SCRO reports. It contained the following paragraph:

> *"*From examination of the photographed impression itself and examination of the locus photograph of the impression Y7 in situ, it was ascertained that the top of the left thumb print, which was identified, was facing in an inward direction, relative to the bathroom*."*

9.39. The report dated 27 March 1997 was not a production in *HMA v* Asbury.[85] The paragraph did not appear in the report that became Production 154 dated 10 April.[86] Mr Stewart said this was not "standard" wording and he thought that the procurator fiscal must have asked for the paragraph.[87] Mr McKenna also said it was not "standard text"; and neither he,[88] nor Ms McBride knew why it had been included.[89]

9.40. Mr MacPherson shed some light on this paragraph. Whilst he could not recall who asked for the report, he remembered being asked for a view as to how the mark had been deposited on the door surround. He said that is why they prepared the report.[90] That is consistent with the report by Mr Malcolm dated 1 April 1997, to which the SCRO report of 27 March 1997 was attached.[91] It was included in the Precognition submitted to Crown Office.[92]

Y7: report dated 10 April 1997

9.41. The productions that were lodged were:

(i) A report, Production 154, dated 10 April 1997 identifying Y7 as Ms McKie's mark based on an elimination form received at SCRO on 7 February 1997, a photograph of Y7 received on 16 January 1997 and a photograph of Y7 received on 18 February 1997.[93]

(ii) Production 152, a book marked "L" containing two photographs of Y7 and a charted enlargement showing sixteen points of similarity between a part of the left thumb of Ms McKie and a part of Y7.[94]

(iii) A fingerprint form in the name of Shirley Cardwell taken on 6 February and date stamped as having been received by SCRO on 7 February 1997 was Production 153.[95]

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85 It was also not a production in *HMA v McKie.*
86 SG_0409
87 Mr Stewart 5 November page 104ff and FI_0036 para 239 Inquiry Witness Statement of Mr Stewart
88 Mr McKenna 6 November pages 46-47 and FI_0054 paras 103-104 Inquiry Witness Statement of Mr McKenna
89 FI_0039 para 122 Inquiry Witness Statement of Ms McBride
90 Mr MacPherson 27 October page 114
91 See chapter 8 para 44
92 CO_3850 pdf pages 68-69
93 SG_0409
94 ST_0006h
95 ST_0004h

9.42. Neither Mr McKenna[96] nor Ms McBride[97] knew why a second report was prepared; Ms McBride assumed that the reports reflected instructions from the procurator fiscal.[98] Mr Stewart also assumed that the report was instructed by the fiscal, but did not know why the "non standard" text in the 27 March report was omitted.[99]

9.43. Mr MacPherson recalled that they were asked to prepare a preliminary report detailing Y7 in situ, and that would be the 27 March 1997 report. The report of 10 April, on the other hand, was "just the normal report that would be used in the trial".[100] Mr Malcolm had stated that the fingerprint officers were not prepared to include an opinion on the manner of deposition in their report.[101] The non-inclusion in the later report of the non-standard paragraph in the report of 27 March would be consistent with that.

9.44. A second factor may also have influenced the production of the second report. The first report referred to a comparison relative to a single photograph of Y7 that was received from Strathclyde Police on 16 January 1997. The April report included a second photograph, one received by SCRO on 18 February 1997. SCRO had carried out a number of checks on Y7, including one using images taken on 18 February 1997.[102] This links to instructions issued by Crown Office, though the letter comes after the second report.

9.45. In the letter dated 11 April 1997[103] Ms Climie of Crown Office provided instructions to the procurator fiscal at Kilmarnock as regards fingerprint evidence in the case *HMA v Asbury*. It gave a general instruction in relation to Y7 to lodge the image of Y7 along with the elimination fingerprint form of Ms McKie and "the comparison report". It also instructed that enlargements be prepared, if this had not already been done, "so that the comparison experts can demonstrate points of similarity". The letter went on to instruct a further report in the following terms:

> *"*A second examination of Y7 was carried out on 12 February 1997 (presumably when the door frame was still in situ) and a second comparison carried out. Evidence regarding this should be included. The report at page 54 of the Precognition appears to be based on a comparison between the original photograph of Y7 and the elimination prints. A second report should be prepared based on the second photograph of Y7...*"*

9.46. Ms Climie would have been working from the Precognition and the report at manuscript numbered page 54 was the SCRO 27 March report. Her instruction referred to a "second comparison" having been carried out on 12 February, which reflects the misunderstanding that the police had that a second comparison had been carried out on that date.[104] The further comparisons were not carried out until 17 and 18 February. Mr Stewart was one of those involved in the comparison

96 FI_0054 para 105 Inquiry Witness Statement of Mr McKenna
97 FI_0039 para115 Inquiry Witness Statement of Ms McBride
98 FI_0039 para.122 Inquiry Witness Statement of Ms McBride
99 FI_0036 para 242 Inquiry Witness Statement of Mr Stewart
100 FI_0055 para 165 Inquiry Witness Statement of Mr MacPherson
101 See chapter 8 para 44
102 See chapter 8
103 CO_3989. See chapter 8
104 See chapter 7 para 48

exercise on 18 February[105] and if, as he recalled,[106] he put together the joint report and book of productions for Y7 that would explain how reference came to be made to the image of that date.

9.47. The 10 April 1997 report referred to the 18 February photograph of Y7 but both the March and the April reports were based on the first set of elimination prints taken on 6 February. This may be accounted for by a perception of image quality. During Ms McKie's trial Mr Stewart said that the further set of elimination prints taken on 18 February were not used because *"*the left thumb taken in this impression was very badly taken at the top of the form; it is over-inked and distorted.*"*[107]

Other marks

9.48. Ms Climie's letter also instructed that:

> *"*In respect of each eliminated print, a schedule should be prepared showing the name of the fingerprint expert who matched it to a named individual. You should ensure that the various fingerprint experts are on the list and that their contemporaneous records to enable them to speak to these matters are produced. This schedule should also detail the prints which remain uneliminated and where these came from.
>
> All eliminated and uneliminated lifted/photographed prints (except those of the accused already produced) should be produced and lodged. This could be done in one large book (presumably the Cardwell print Y7 will be separately produced).*"*

9.49. Mr MacPherson told the Inquiry that SCRO had to produce all the impressions that had been identified, and, further, all those that were fragmentary and insufficient or outstanding. Every mark had to be accounted for. On the instructions of the procurator fiscal a separate charted enlargement had to be produced for each person identified as having made a mark.[108] Mr MacPherson said that this instruction from the procurator fiscal meant that all of the enlargements had to be signed off by four examiners to the 16-point standard.[109] Mr Mackenzie said that to his knowledge this was the first time that this happened.[110] Mr Stewart also commented on the unusual nature of this work. He said that the number of non-standard requests from the procurator fiscal made the Asbury case unusual.[111]

9.50. The Inquiry recovered a number of additional reports which are consistent with Mr MacPherson's account. These include reports dated 11 and 16 April 1997, including a report on the print identified as that of the SOCO Mr Ferguson.[112] There was also a report dated 21 April 1997 which listed marks that were insufficient for

105 See chapter 7 para 165
106 FI_0036 para 236 Inquiry Witness Statement of Mr Stewart
107 SG_0526 pdf page 41 and FI_0036 para 244 Inquiry Witness Statement of Mr Stewart
108 FI_0055 paras 63-64 Inquiry Witness Statement of Mr MacPherson and FI_0056 para 119 Inquiry Witness Statement (Supp.) of Mr MacPherson
109 FI_0056 para 119 Inquiry Witness Statement (Supp.) of Mr MacPherson
110 See FI_0046 para 113 Inquiry Witness Statement of Mr Mackenzie
111 FI_0036 para 231 Inquiry Witness Statement of Mr Stewart
112 SG_0411

comparison purposes and others that had been compared with a negative result.[113] An associated book of productions was prepared, "Book Q." This was Production 167[114] in both trials and contained 64 pages of photographs and lifts.

Report on planting

9.51. Mr Stewart said that he and Mr MacPherson produced a report at some point into the possibility that Y7 had been planted. They concluded that there had been no tampering with the mark.[115] This report has not been located.

Commentary: Pro forma reports and disclosure

9.52. Productions 100,[116] 101[117] and 154,[118] the principal 1997 joint reports, were all prepared in accordance with the pro forma style. They each narrated that they were joint reports in terms of section 26 of the Criminal Justice (Scotland) Act 1980. In fact, section 26 was repealed by the Criminal Procedure (Consequential Provisions) (Scotland) Act 1995, section 6 and schedule 5 with effect from 1 April 1996. The relevant pro forma at SCRO had not been updated to reflect that change in the law.[119] This error in the 1997 reports, though not of substantive legal significance, may indicate a lack of legal input into SCRO's work at that time.

9.53. It is clear from the fact that the pro forma style was being followed that the fingerprint evidence relative to the identification of Y7 was still being approached as essentially routine in nature. That the identification of Y7 was not routine and straightforward was, or should have been, apparent when Mr Geddes failed to agree Mr MacPherson's sixteen points. Unknown to the police and Crown Office the subsequent checks did not provide unqualified endorsement of the views of the four examiners who came to be signatories to the joint reports because as many as five of those involved in the checking processes failed to find 16 points in coincident sequence and matched only as a non-court standard 'elimination'.[120]

9.54. The SCRO examiners may themselves have been at cross-purposes in this regard.

- In evidence at the trial in *HMA v McKie* Mr Stewart cited the fact that the mark had been checked by Mr Mackenzie and Mr Dunbar.[121] Similarly Ms McBride testified that the system was infallible because four examiners and the quality assurance officer (i.e. Mr Dunbar) could not all be wrong.[122] Both Mr Stewart and Ms McBride must have believed that they had the unqualified support of their colleagues when it is now known that there was a caveat to the opinions of Mr Mackenzie and Mr Dunbar insofar as they were, at least in 1997, only confirming an 'elimination' to less than 16 points.

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113 DB_0015. Mr MacPherson spoke to the report during the trial in *HMA v Asbury* - SG_0523 pdf pages 37-39 (Transcript of proceedings, *HMA v Asbury* 27 May 1997 evidence of Mr MacPherson).
114 SG_0401
115 FI_0036 paras 262-263 Inquiry Witness Statement of Mr Stewart
116 SG_0352
117 SG_0377
118 SG_0409
119 The Y7 report produced specifically for *HMA v McKie* (Production 190 (SG_0396)) made reference to the correct statutory provision.
120 See chapter 7 para 192
121 See chapter 12 para 22
122 See chapter 12 para 37(ii)

- In his presentation at Tulliallan in August 2000 Mr Mackenzie gave an explanation of his own involvement in 1997. The minute of the meeting records him as having said that "Officers working on the case had eliminated the mark" and that a repeat exercise was undertaken in which he and other examiners saw sufficient detail "to eliminate" the mark.[123]

9.55. The problem is that there is a latent ambiguity in the term 'elimination' because it can cover a conclusion of identity formed either in accordance with the 16-point standard or to a lesser standard of personal satisfaction.[124] There does seem to have been unanimity among the SCRO examiners with respect to the conclusion that Y7 could be 'eliminated' as the mark of Ms McKie but behind that unanimity there were differences of opinion as to whether the conclusion could be supported in accordance with the 16-point standard.

9.56. Exhaustive reports were instructed from SCRO. Given the significance of fingerprint evidence to the case against Mr Asbury the Crown sought to explain as many of the other marks as possible. The proximity of Y7 to the place where Miss Ross's body was found meant that it was an important mark and inevitably that made finding an explanation for it a matter of importance. Crown Office even followed up the second comparison of Y7 but due to the fact that the case had been assigned to four examiners who had, from the outset, identified that mark to the 16-point standard, instructing a further comparison using another image (18 February as it turned out) did not cast any doubt on the previous understanding that the fingerprint evidence was irrefutable and the trial in *HMA v Asbury* proceeded on that basis.

9.57. In retrospect, the approach of the day, which was to prepare routine reports to a pre-set style, was not apt to bring out the full complexity of the situation regarding Y7. That said, it is perhaps more accurate to say that the failure to disclose the full complexity had first occurred at an earlier stage when the result was first reported to the police.[125]

9.58. This is taken up in the discussion of factor (x) in chapter 28.

123 CO_0050 pdf page 4
124 See for example chapter 7 para 194
125 See chapter 8 paras 11-12

CHAPTER 10

PREPARATION FOR THE TRIAL IN *HMA v McKIE*

Introduction

10.1. In 1998 the decision was made to prosecute Ms McKie for perjury. This chapter deals with the period between summer 1997, when the trial of Mr Asbury concluded, and the service of the indictment on Ms McKie in late January 1999.

The exercise of the Crown's discretion to prosecute

10.2. The exercise of the Crown's discretion in deciding to prosecute Ms McKie on a charge of perjury does not fall within the terms of reference of the Inquiry. Although this chapter covers the period during which the decision to prosecute was taken, the matters of significance to the Inquiry are in relation to the collection and assessment by the Crown of the fingerprint evidence and any evidence having a bearing on the reliability of the fingerprint evidence.

10.3. An issue which arose for consideration and investigation was whether the Crown fell to be criticised for not having instructed an English fingerprint examiner to provide an opinion as to the identification of Y7. At one stage an instruction was recorded in the Crown Office papers to the effect that such an opinion might be appropriate but, in the event, it was not obtained.

Crown Office papers

10.4. The Inquiry did not recover all of the Crown Office papers in relation to the prosecution of Ms McKie. There is a period of the preparation of the case against Ms McKie (from 19 October 1998 to 19 January 1999) in relation to which the written records and correspondence are incomplete. This is significant because the local procurator fiscal's papers indicate that a Crown Office instruction that may have had some relevance to the instruction of a comparison of Y7 by an English examiner was given on or about 9 November 1998[1] but there are no internal Crown Office papers available to the Inquiry to assist the recollection of witnesses or otherwise shed light on either the specific matters discussed within Crown Office or the identities of those involved.

10.5. I record here the steps that were taken to recover papers from Crown Office.

10.6. In September 2008 a request was made to Crown Office for all documentation relating to the prosecutions in *HMA v Asbury* and *HMA v McKie*. Mr Scott Pattison, then Director of Operations for the Crown Office and Procurator Fiscal Service (COPFS),[2] sent documents to the Inquiry under cover of a letter dated 3 October 2008. In this he indicated that the materials provided included all documents relating to *HMA v Asbury* and all documents relating to *HMA v McKie*. Examination of the papers indicated that there might be further documents that fell to be provided.

10.7. A meeting was held between COPFS and the Inquiry on 19 November 2008. It was agreed that COPFS would look for, amongst other things, the "missing part 1 of

1 CO_3451
2 Now (2011) Sheriff Pattison

the Precognition and Full Committal Report relating to David Asbury". In January 2009, COPFS delivered "volume 1 of the Precognition against David Asbury and the Procurator Fiscal's report to Crown Office following committal for further examination…along with further papers relating to the prosecution of David Asbury" to the Inquiry. A tranche of papers relating to *HMA v McKie*[3] was included in this.

10.8. COPFS wrote to the Inquiry in February 2009, regarding the Crown Office High Court file relating to the prosecution of Ms McKie. High Court papers are contained in a buff coloured file. The letter said that although it appeared that the buff file for the McKie case did not exist in its complete form, it was clear that the typical contents of such a file had already been provided to the Inquiry as part of the documents disclosed to the Inquiry by COPFS in October 2008 and in January 2009. It said that the prosecutions of Ms McKie and Mr Asbury were closely linked, and papers which would have formed part of the buff file for the McKie case were actually enclosed in the High Court file relating to the prosecution of Mr Asbury.

10.9. By letter of 1 June 2009 Mr Pattison explained that the Inquiry had been provided with papers relating to *HMA v McKie* for the period to 19 October 1998.

10.10. In the course of Mr John McMenemy's evidence on 11 June 2009, it became apparent that there might be further papers – particularly working papers from Kilmarnock – that had existed, but which were not available to the Inquiry.[4] As a result, Mr McMenemy visited the Inquiry offices and identified that the Inquiry was not in possession of the "principal police report to Procurator Fiscal's Office" or the "correspondence file that would have police subjects sheets in it" with regard to *HMA v Asbury*.

10.11. On 19 June 2009, Mr Pattison wrote to the Inquiry stating that in the continual search for documents relevant to the Inquiry, papers relating to the file of *HMA v Asbury* had been located at the Kilmarnock procurator fiscal's office. The Inquiry was given these original documents.

10.12. Thus, with regard to *HMA v Asbury*, the Inquiry obtained the Crown Office file (containing loose papers from Crown Office and the High Court); the full Precognition; and the Kilmarnock file.

10.13. In relation to the case of *HMA v McKie* COPFS initially could not find the buff folder – that Ms Climie described in oral evidence as her indicter's file – relating to the prosecution but provided the Inquiry with some of the relevant papers: the Glasgow procurator fiscal's file relating to the case; the full Precognition; and some internal Crown Office papers that had been placed in the file for *HMA v Asbury*. The papers available to the Inquiry at the time of the hearings did not include the buff file, and the other available papers did not cover the period from about 19 October 1998 to 19 January 1999.

10.14. After the hearings were concluded the buff file[5] was located by COPFS and provided to the Inquiry under cover of a letter dated 25 February 2011.[6] With the

3 CO_3923-CO_3957 and CO_3453-CO_3480
4 Mr McMenemy 11 June pages 142-144, 152-153
5 CO_4441–CO_4501
6 CO_4516

exception of a copy of a manuscript note dated 20 February 1998 (relating to placing Ms McKie on petition) and a typed note dated 17 November 1998 on the application of the best evidence rule to transcripts of evidence at trial, the earliest correspondence on the file is a copy of the letter dated 19 January 1999[7] written by Ms Climie to Mrs Denise Greaves, a procurator fiscal in Glasgow. The signed original[8] of this letter is in the papers of the Glasgow procurator fiscal's office and was available at the time of the hearing. The discovery of the buff file does not fill the gap in the papers that were available to the Inquiry at the time of the hearing relating to the three months from 19 October 1998 to 19 January 1999 and, therefore, does not assist with the resolution of the issue concerning the explanation for the failure by Crown Office to instruct a review of the comparison of Y7 by a fingerprint examiner from outside SCRO.

10.15. Mr Pattison explained in evidence on 17 November 2009 that the Crown's papers had, in the years since the trials to which they related, been supplied to other inquiries and investigations. As a result, the file relating to *HMA v McKie* had, he said, become fragmented.[9] Notwithstanding the discovery of the buff folder that stands as the explanation for the residual gap from October 1998 to January 1999.

Personnel involved in 1997-1999

10.16. Among those involved in the prosecution of Ms McKie were:

- Lord Boyd of Duncansby, who, as Colin Boyd Q.C., was then Solicitor General, with responsibility for day-to-day casework in Crown Office.[10] He took the decision to prosecute Ms McKie.
- Ms Climie, who was working as a procurator fiscal at Crown Office and was an 'indicter' until early October 1998.
- Mrs Greaves, a procurator fiscal who worked in the Complaints against the Police Unit of the Glasgow procurator fiscal's office until the end of January 1998 but continued to be involved in the case, whilst working in another unit, until it was indicted.[11]
- Mr Sean Murphy Q.C.,[12] who was the trial advocate depute in *HMA v McKie.*

10.17. In the ordinary course a Law Officer does not take a decision to prosecute. Prosecutions are normally authorised by an advocate depute. Ms McKie was a serving police officer when the decision was taken to prosecute her. The policy at Crown Office was that any decision relating to the possible prosecution of a serving police officer had to be taken by a Law Officer, normally the Solicitor General.[13] This reflected the gravity of a decision to prosecute. Lord Boyd said that it was a long standing policy.[14]

7 CO_4454
8 CO_3445
9 Mr Pattison 17 November page 11
10 Lord Boyd of Duncansby 10 November page 3
11 Mrs Greaves 1 July page 98, FI_0038 para 9 Inquiry Witness Statement of Mrs Greaves
12 Now Sheriff Murphy
13 Lord Boyd of Duncansby 10 November page 4 and FI_0057 para 18 Inquiry Witness Statement of Lord Boyd of Duncansby
14 FI_0057 para 18 Inquiry Witness Statement of Lord Boyd of Duncansby

10.18. The fact that the instruction to place Ms McKie on petition was made by a Law Officer is, therefore, explained by her status as a serving police officer.

Views in Scotland on fingerprint evidence in 1997-1999

10.19. Any potential criticism of an institution or individual for not considering the possibility that Y7 was incorrectly identified must be seen in the context of the views generally held at the time regarding the reliability, or otherwise, of fingerprint evidence. It was generally regarded as infallible and was approached as routine evidence, rarely challenged and, indeed, often agreed between prosecution and defence without need for a fingerprint examiner to give any evidence at the trial.[15]

Infallibility

10.20. Lord Boyd said that at this time fingerprint evidence was regarded as being 100% reliable.[16] There were no concerns about the reliability of fingerprint evidence around 1998. At the time, the presence of a fingerprint on something immoveable, such as a door surround, was viewed as almost irrefutable evidence that the person had been in the locus.[17]

10.21. Mrs Greaves told the Inquiry that in late 1997 it was her view that there was little scope for doubt in fingerprint evidence, and that the general perception was that it was infallible.[18] Her impression was that the police viewed it as infallible.[19] Ms Climie said that she "laboured in 1998 on the assumption that fingerprint evidence was infallible".[20] Mr Murphy said that fingerprint evidence was regarded as reliable.[21]

10.22. Ms McBride's view at the time was that SCRO's system was infallible and she gave evidence to that effect at the trial.[22] Until the involvement of Mr Wertheim shortly before the trial that was a view that Mr and Ms McKie both shared.

How often was fingerprint evidence challenged in Scotland?

10.23. Lord Boyd, who had been an advocate depute for three years before his appointment as Solicitor General, said that fingerprint evidence was only very occasionally challenged.[23]

10.24. Mr Murphy had, at that time, almost ten years' experience as a criminal practitioner. He could not remember a single case in which fingerprint evidence had been challenged. If there was a challenge it was about how the fingerprint came to be left on an object and not about the identity of the person who made the print.[24]

10.25. Mrs Greaves said that at the time she had no personal knowledge of a contested fingerprint case.[25] Ms Climie said that it was almost unheard of for fingerprint

15 See chapter 31
16 Lord Boyd of Duncansby 10 November page 25
17 FI_0057 paras 25-27 Inquiry Witness Statement of Lord Boyd of Duncansby
18 Mrs Greaves 1 July page 69
19 Mrs Greaves 1 July page 71
20 FI_0075 para 22 Inquiry Witness Statement of Ms Climie
21 Sheriff Murphy 25 June page 9
22 See SG_0528 pdf page 32
23 FI_0057 paras 25-27 Inquiry Witness Statement of Lord Boyd of Duncansby
24 Sheriff Murphy 25 June page 9
25 Mrs Greaves 1 July page 69

identifications to be challenged by defence evidence.[26] So far as she was aware there had never been a successful challenge to SCRO evidence.[27]

10.26. Mr Crowe, then Deputy Crown Agent, had a sense from a review meeting of 20 May 1999, after the trial, that the SCRO examiners who gave evidence at the trial, Mr MacPherson, Mr Stewart and Ms McBride, had never been challenged so systematically before and so vigorously.[28] They had never so far as he could make out "had a head-to-head challenge on the identification of the subject of who had made the mark".[29]

10.27. That is confirmed by the evidence of Mr MacPherson, who said that *HMA v McKie* was the first time he had faced a direct challenge to an identification of his in court. The turn of events was a surprise. As far as he was aware it was the first challenge to an identification by SCRO.[30] It was also the first time one of Mr Stewart's identifications had been challenged in court.[31]

To what extent did fingerprint examiners have to give evidence in court?

10.28. As discussed in chapter 31, in practice fingerprint evidence was regarded as routine and was normally a matter of agreement between prosecution and defence.

10.29. Mrs Greaves had been employed by the procurator fiscal service since August 1987,[32] and so had almost ten years' experience by the time of *HMA v Asbury*. In her experience prior to *HMA v Asbury* fingerprint officers had not been asked to attend court.[33] She could not remember ever having to call a fingerprint examiner to give evidence.[34] She explained that fingerprint evidence was very often the subject of agreement between the prosecution and defence.[35] Ms Climie told the Inquiry that she had been in the fiscal service for 24 years and never had to lead fingerprint evidence in court.[36]

10.30. As at the date of the trial Mr Stewart had 28 years experience as a fingerprint officer and had been qualified for 22 years. He said that it was rare for SCRO examiners to speak in court to all of the characteristics in an actual comparison. They sometimes used enlargements to show the jury what the fingerprint pattern was and what the different characteristics were, as an illustration, but the SCRO examiners did not have much experience of having to demonstrate all of the points. Indeed, Mr Stewart said that *HMA v McKie*, which involved detailed examination and cross-examination on the substance of his opinion, was a learning experience. The demonstration of points was a new experience. They had not done it in such depth before. Mr Stewart said "we were virtually making it up as we were going along".[37]

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26 FI_0075 para 13 Inquiry Witness Statement of Ms Climie
27 Ms Climie 2 July page 32
28 Sheriff Crowe 2 July page 173
29 Sheriff Crowe 3 July page 13
30 Mr MacPherson 3 November pages 85-86
31 Mr Stewart 5 November page 138
32 FI_0038 para 2 Inquiry Witness Statement of Mrs Greaves
33 Mrs Greaves 1 July page 69
34 Mrs Greaves 1 July page 122
35 FI_0038 para 6 Inquiry Witness Statement of Mrs Greaves
36 Ms Climie 2 July page 104
37 Mr Stewart 5 November page 193

The preparation process

Summer 1997: the instruction to prepare a Precognition

10.31. The trial in *HMA v Asbury* ended on 4 June 1997. After the trial, the advocate depute, Mr Dewar, submitted a note to the then Lord Advocate, Lord Hardie,[38] dated 5 June 1997.[39] Mr Dewar's note read:

> "This was the case in which the fingerprint of DC Cardwell was found on the bathroom door standard....
>
> The question arises whether DC Cardwell should be prosecuted for perjury as she gave evidence during the trial to the effect that she had never been in the house. She had, of course, no authority to be there.
>
> An extensive police inquiry has taken place as to how the fingerprint came to be in the house and disciplinary proceedings against DC Cardwell have been commenced. On the basis of my knowledge of the case... there would appear to be no other sensible conclusion than that the DC must have been in the house, without authority, at some stage. On oath, she denied, on a number of occasions, that she had been.
>
> The matter is a very serious one as the jury might have acquitted Asbury on the basis that they could not rely on the other (incriminating) fingerprint evidence in the case. Thankfully, they did not.....
>
> In these circumstances my recommendation, at this stage, is that perjury proceedings should be taken. As a starting point... a transcript of DC Cardwell's evidence will require to be obtained...."

Steps taken at Crown Office following Mr Dewar's note

10.32. Cases involving the crime of perjury at a trial were handled in a special way. The first stage in the process was to obtain a transcript of Ms McKie's evidence. On 9 June the Lord Advocate instructed the Home Advocate Depute[40] to obtain a transcript[41] and he relayed that instruction to the then head of the High Court Unit, Mr Gallacher,[42] by minute dated 16 June.[43] Following receipt of the transcript Mr Gallacher wrote a minute to the duty advocate depute dated 29 July seeking instructions.[44] The duty advocate depute ("PHB" – thought to be Philip Brodie Q.C.)[45] instructed that the procurator fiscal Glasgow precognosce the case without Ms McKie being placed on petition.[46] Mr Gallacher conveyed that instruction to the procurator fiscal by letter dated 30 July.[47]

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38 By this time the 1997 general election had been held, and Lord Hardie was appointed as Lord Advocate in place of Lord Mackay of Drumadoon.
39 CO_3957
40 At that time A.P.Campbell Q.C., now Lord Bracadale. As noted earlier, the Home Advocate Depute was the most senior advocate depute.
41 C0_3956
42 Now Sheriff Gallacher
43 CO_3955
44 CO_3950
45 Now Lord Brodie
46 CO_3951
47 CO_3506

10.33. In mid-August the Regional Procurator Fiscal for Glasgow and Strathkelvin instructed Mrs Greaves to precognosce the case.[48]

Mr Asbury's appeal

10.34. Mr Asbury lodged a Note of Appeal against his conviction dated 5 August.[49] The Note of Appeal did not dispute the identification by SCRO of QI2 (Ross) or XF (Asbury), which were the material marks in the case against him.

August 1997: Disciplinary proceedings against Ms McKie: Mr Wilson's report

10.35. Strathclyde Police had initiated a disciplinary investigation into possible misconduct by Ms McKie in May 1997.[50] The police anticipated a possible prosecution. The Deputy Chief Constable of Strathclyde Police wrote to the Regional Procurator Fiscal, Paisley by letter dated 4 August 1997,[51] to ask if a misconduct hearing would affect any action that the Crown might be considering. The correspondence was referred to Crown Office and the Deputy Crown Agent (Mr Norman McFadyen) advised the Regional Procurator Fiscal that because perjury was being investigated he "imagined" that the Deputy Chief Constable would not wish to proceed with misconduct proceedings at present.[52] The Regional Procurator Fiscal replied to say he would update the Deputy Chief Constable in terms of Mr McFadyen's letter.[53]

10.36. As part of the disciplinary investigation Mr Wilson prepared a report into the matter dated 26 August 1997.[54] The report recommended disciplinary proceedings. The report contained statements, noted as taken by Mr Wilson on 24 June 1997 at SCRO, from Mr MacPherson, Mr Stewart and Ms McBride. Mr Wilson's view of fingerprint evidence at the time was that it was "incontrovertible" or "bombproof". He had no doubts that the identification was correct and that this meant Ms McKie had been inside the house.[55]

Meeting with Mr Gibb and Mr Wilson

10.37. Mrs Greaves met with Mr Gibb[56] and Mr Wilson.[57] She did not recollect either officer expressing concerns to her about the prospects of a conviction because police witnesses spoke to Ms McKie not being in the locus and the only evidence that placed Ms McKie in the locus was Y7. She noted that no mention is made of such concerns in the Precognition. Had she known of such concerns she said that she would have included them in the Precognition. She was aware that the log keeping was problematic.[58] After their discussions Mr Wilson provided Mrs Greaves in January 1998 with a report on four murder cases, other than that of Marion Ross, that Ms McKie had previously worked on during her career with Strathclyde Police.[59]

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48 CO_3943
49 CO_3402
50 See chapter 8
51 CO_3505
52 CO_3942
53 CO_3941
54 CO_0345
55 FI_0078 para 19 Inquiry Witness Statement of Mr Wilson
56 Chief Superintendent
57 Chief Inspector
58 FI_0038 para 16 Inquiry Witness Statement of Mrs Greaves
59 See CO_0280 and CO_0278

Precognition of Mr Kerr, Mr Stewart and Mr MacPherson

10.38. Among the witnesses precognosced by Mrs Greaves were Mr Kerr, Mr Stewart and Mr MacPherson.

10.39. Mrs Greaves took notes during her meeting with Mr Kerr[60] which recorded Mr Kerr as saying that Ms McKie had asked him just before the Saturday lunchtime at Kilmarnock police office if she could visit the locus. The notes also recorded that he saw her at the house just after lunch and that he left at around 3pm in the afternoon. The typewritten precognition,[61] prepared after the meeting, reflected Mrs Greaves' understanding of what Mr Kerr had told her. Mrs Greaves' practice was to prepare the formal typewritten precognition soon after the relevant discussion so that matters would be fresh in her mind[62] but precognitions are not sent to witnesses to confirm the accuracy of what has been noted.

10.40. Mrs Greaves also took handwritten notes when she precognosced Mr Stewart[63] and Mr MacPherson.[64] A file provided to the Inquiry contains precognitions of Mr Stewart dated 2 October 1997[65] and 16 December 1997.[66] It also contains a precognition of Mr MacPherson dated 8 October 1997.[67]

10.41. Mrs Greaves did not think that at the stage of precognoscing Mr Stewart and Mr MacPherson it had occurred to her that a line of defence might be that the SCRO identification of Y7 was wrong. She did not ask them whether they could have made a mistake. At the time when she was precognoscing them the anticipated line of defence was that the mark had been planted or transposed[68] and she may also have been influenced by knowledge that the defence expert for Mr Asbury in *HMA v Asbury* had reached a similar conclusion.[69] She could remember no other case where she discussed the number of points of comparison with examiners[70] and, in the context of *HMA v McKie*, she did not attempt to discuss the points found with reference to the charted enlargements. The reason, she said, was that she was not an expert and had no training.[71] She accepted that she could have asked them about such matters, but she did not. She did not regard it as part of her function to do so. She presumed that they used specialist equipment when they carried out their examinations which she did not have in her office where she met them.[72] She was not, therefore, in a position to look at prints, in the way that they would have done, under specialist conditions.[73] She thought that Mr MacPherson and Mr Stewart explained how they carried out comparisons and what they looked for. Mr Stewart did, however, offer to prepare an example for the jury[74]

60 CO_3588 pdf page 28
61 CO_2592
62 Mrs Greaves 1 July pages 55-61
63 CO_3587 pdf pages 14-33
64 CO_3587 pdf page 59ff
65 CO_2630
66 CO_2631
67 CO_2624
68 Mrs Greaves 1 July page 66
69 Mrs Greaves 1 July pages 66-67
70 Mrs Greaves 1 July page 118
71 Mrs Greaves 1 July page 127
72 Mrs Greaves 1 July page 127
73 Mrs Greaves 1 July page 130
74 CO_3587 pdf page 27

and, in due course, a generic production (Production 181)[75] was prepared and lodged.

Completion of Precognition

10.42. Having completed the Precognition Mrs Greaves discussed it with the Regional Procurator Fiscal before sending it to Crown Office for a decision.[76] The Precognition contained an 'analysis of evidence'[77] which was signed by Mrs Greaves and countersigned by Mr Vannet, the Regional Procurator Fiscal. The Precognition was dispatched to Crown Office on 19 December 1997 and received there on 22 December 1997.[78]

The terms of the Precognition submitted to Crown Office

10.43. Much of the focus of the analysis of evidence prepared by Mrs Greaves was on the question of planting. The analysis of evidence proceeded on the hypothesis that the matching of Y7 with Ms McKie was not in doubt: "There is no doubt that the comparison shows her prints and the impression to be identical."[79] It expressly made reference to the infallibility of fingerprint examination stating that Ms McKie "called into question the reliability and infallibility of fingerprint evidence... Given the reliability and status of fingerprint evidence, the only conclusion to be drawn is that she has told lies on oath."

10.44. Although there was no doubt about the correctness of SCRO's conclusions the analysis, on the page numbered 37 in manuscript,[80] contained a suggestion that was to be the subject of further consideration in Crown Office:

> "While SCRO (fingerprints) are independent from Strathclyde Police and have compared the fingerprint forms provided and the impression 'Y7' found in the house of Marion Ross, Crown Counsel may wish to consider whether or not an expert unconnected with the case should make a further comparison. In relation to the articles which Chief Inspector Hogg has provided relating to transplanted and faked fingerprints, Crown Counsel are asked whether an expert in this field should be instructed. Chief Inspector Hogg does not consider himself an expert in transplanted and faked fingerprints. The name Dr [sic] Terry Kent of the Home Office at Sandwich has been mentioned as a possible expert."[81]

10.45. The analysis also conveyed the concern on the part of the police that the jury might not understand the infallibility of fingerprint evidence:

> "The precognoscer is aware that the police are extremely concerned that should the case against Shirley Cardwell proceed to a trial that a jury may not fully understand the complexities of the case and the infallible nature of fingerprint evidence."[82]

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75 CO_0201
76 FI_0038 para 5 Inquiry Witness Statement of Mrs Greaves
77 CO_2561
78 CO_3937
79 CO_2561 pdf page 1
80 CO_2561 pdf page 4
81 CO_2561
82 CO_2561 pdf page 4

10.46. Mrs Greaves also submitted a document entitled 'Problems/ Observations/ Comments'.[83] This document contemplated a comparison of Y7 by someone unconnected with the case and, separately, the instruction of an expert in relation to planting.

10.47. Mrs Greaves explained that at the time of the Precognition the primary issue was the possibility of forgery or planting and the problem with the identification only crystallised later during the trial.[84] She did not have any information that led her to question SCRO's identification[85] but she thought it necessary to get a further view on the identification of Y7.[86] Her reason for suggesting a further comparison was to ensure that the investigation was complete and that every aspect had been looked at, so that there was information on all matters that could potentially be raised at the trial.[87]

January 1998: the decision to place Ms McKie on petition

10.48. The Deputy Crown Agent, Mr McFadyen, dealt with the Precognition on 2 January 1998 and he referred it to Ms Climie for comment. Ms Climie suggests that this was because she had been involved in *HMA v Asbury*.[88] His note[89] stated that it would be helpful if Crown Counsel could have Ms Climie's comments. The note included the following observation:

> "...it is improbable that fingerprints would have been planted in this case, but given the observations on Cardwell's plausibility it may indeed make sense to involve an independent expert – both on the question of transfer/planting and on the general basis for concluding that fingerprint identification is 100% reliable." [Original underlining]

The observation on "plausibility" derived from the analysis which reported that the police were concerned that Ms McKie would present well in court.[90]

10.49. Ms Climie's understanding of Mr McFadyen's suggestion regarding 100% reliability was that it related to the reliability of fingerprint evidence.[91] She did not know who the relevant expert would be, that was for the fiscal to find out.[92] Ms Climie agreed that it was incomprehensible that fingerprints should have been planted in this case.[93]

10.50. Ms Climie submitted her comments to the duty advocate depute for instruction on 15 January 1998.[94]

> "I recommend that the further fingerprint expert evidence be pursued – see page 37 of the Precognition. The Home Office expert should be asked to give

83 CO_3573
84 FI_0038 para 20 Inquiry Witness Statement of Mrs Greaves
85 Mrs Greaves 1 July page 74
86 FI_0038 para 11 Inquiry Witness Statement of Mrs Greaves
87 Mrs Greaves 1 July page 74
88 Ms Climie 2 July page 10
89 CO_3936
90 CO_2561 pdf page 4
91 Ms Climie 1 July pages 172-173
92 Ms Climie 1 July page 176
93 Ms Climie 2 July page 5
94 CO_3935

> expert evidence on (a) the plausibility of transfer/planting of the print and (b) the general basis for concluding that fingerprint identification is 100% reliable (I understand, although I do not know the detail, that the English standard for matching prints is more stringent than that used in Scotland altho' even in Scotland the number of points of comparison required before a match is declared is higher than the number required in some other jurisdictions. It might be an idea to pursue whether Y7 can be matched to Shirley Cardwell on the English standard. Presumably the Home Office Expert could deal with this)." [Original underlining]

Ms Climie's letter of 30 January 1998[95] suggests that the possibility of a difference between English and Scottish standards may have come from Mrs Greaves;[96] and Mrs Greaves thought she might have obtained this information from Mr Hogg.[97]

10.51. Ms Climie's note sought Crown Counsel's instructions. The duty advocate depute ("JCP" – thought to be the late Jane Paterson) gave an instruction[98] to Ms Climie and the Deputy Crown Agent dated 15 January 1998.[99] She instructed that Ms McKie should be indicted to the High Court. She endorsed the recommendation to instruct an independent expert not only on the two points mentioned by the Deputy Crown Agent but also Ms Climie's suggestion regarding a comparison by an English expert. The duty advocate depute's instruction on that matter was in these terms:

> "If the English requirement is more stringent, it would be helpful if the expert making yet another comparison could do so to the English requirements."

10.52. Ms Climie then wrote a note to the Deputy Crown Agent on the same day.[100] In the note she said that the appropriate first step should be to place Ms McKie on petition. In so doing she took issue with Crown Counsel's instructions, pointing out that Ms McKie had not appeared on petition, and that placing her on petition would be the appropriate first step (rather than indicting her to the High Court). She also said that she thought that Ms McKie should not be placed on petition until the further fingerprint evidence was pursued and that this might take some time. She noted that placing Ms McKie on petition would result in Ms McKie being suspended from duty while on the other hand it would enable her to instruct solicitors in what would undoubtedly be a contested case.

10.53. Ms Climie also expanded on what was understood to be the more stringent English requirement. She understood that Scots practitioners would count a "lake" in the ridges as two separate ridge characteristics towards the total of 16, whereas English practitioners would count it as only one. Ms Climie explained that the reason behind the suggestion of an approach to the English expert was that on an extreme example, whereas a Scottish examiner would count 16 characteristics, the English examiner would count eight even though both Scottish and English

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95 CO_3928
96 FI_0038 para 8 Inquiry Witness Statement of Mrs Greaves
97 Mrs Greaves 1 July page 116
98 This should have been a note to the Solicitor General with a recommendation and not an instruction (Lord Boyd of Duncansby 10 November page 16).
99 CO_3934
100 CO_3933

examiners ostensibly operated to the same 16-point standard. She did not doubt the SCRO identification. She also thought that she knew at the time that an independent expert had agreed with the identification.[101]

10.54. The Deputy Crown Agent then reported the matter to the Solicitor General, then Mr Colin Boyd Q.C., by minute dated 16 January.[102] He expressed his reluctance to delay in placing Ms McKie on petition. The Solicitor General responded by minute dated 20 January.[103] It was his opinion that Ms McKie should be put on petition in early course. He told the Inquiry that until placed on petition an accused person is left in a kind of limbo and cannot apply for legal aid and instruct their own advisers.[104] He endorsed the need for an independent expert: "Clearly we need a further independent expert but that need not hold up the petition."

10.55. On 26 January 1998 the Solicitor General gave the instruction that Ms McKie should be placed on petition.[105] Lord Boyd could not remember giving any further instruction after that stage.[106] There is a manuscript instruction from the Solicitor General following a discussion, dated 26 January:[107] "DCA As discussed please arrange for Cardwell to be placed on petition."

10.56. As Lord Boyd explained the decision to commence criminal proceedings against a police officer was most serious. He told the Inquiry that before reaching this decision he would have read much of the Precognition, the analysis of the evidence and the conclusions. He would also have looked at much of the additional material in the Precognition.[108] Lord Boyd remembered a discussion with the Deputy Crown Agent and recollected that the log did not disclose that Ms McKie had been at the locus, but there were issues about the reliability of the log and his conclusion, at the time, was that this was a matter for the jury.[109]

10.57. Lord Boyd did not think that the instructions in relation to the fingerprint evidence reflected a concern as to the sufficiency of the evidence. There was at the time no reason to cast any doubt on the reliability of fingerprint evidence or on the independence, either collectively or individually, of the SCRO examiners.[110] He did not envisage a challenge other than on the basis of forgery or planting, and did not envisage any question relating to the reliability of the fingerprint evidence itself. He would have been surprised if anyone had a doubt about the fingerprint evidence.[111] It seemed to him that if an expert had been asked to deal with the issue of planting then it would have been inconceivable not to ask him also to look at the issue of comparison. Had that not been done, the expert and the Crown might have been open to criticism at the trial.[112]

101 Ms Climie 2 July pages 17-18
102 CO_3932
103 CO_3931
104 Lord Boyd of Duncansby 10 November page 17
105 FI_0057 para 6 Inquiry Witness Statement of Lord Boyd of Duncansby
106 FI_0057 para 10 Inquiry Witness Statement of Lord Boyd of Duncansby
107 CO_3930
108 FI_0057 para 19 Inquiry Witness Statement of Lord Boyd of Duncansby
109 FI_0057 para 24 Inquiry Witness Statement of Lord Boyd of Duncansby
110 FI_0057 para 21 Inquiry Witness Statement of Lord Boyd of Duncansby
111 Lord Boyd of Duncansby 10 November pages 25-26
112 Lord Boyd of Duncansby 10 November page 26

Instructions to Mrs Greaves

10.58. The Solicitor General's minute was passed by the Deputy Crown Agent to Ms Climie along with a note to her from the Deputy Crown Agent.[113]

10.59. Ms Climie then wrote to Mrs Greaves, by letter dated 30 January.[114] The letter stated that Crown Counsel had instructed that Ms McKie be placed on petition. The letter then gave instructions about fingerprint evidence:

> "In the meantime please would you proceed as quickly as possible with the fingerprint expert enquiry referred to in the second paragraph of page 37 of the Precognition.[115] A suitable English expert should be sought who can give evidence regarding the following matters
>
> 1. The general question of the transfer and planting of lifted fingerprints on to another surface;
>
> 2. The general basis for concluding that fingerprint identification is 100% reliable;
>
> 3. Whether, on examination of the fingerprint Y7, there is anything to suggest that this print has been lifted from another surface and transferred to the door surround."

10.60. Ms Climie's letter continued in the following terms:

> "I understand from discussion with Mrs Greaves, that the English practice for identifying points of similarity is more stringent that the Scottish practice. If this is indeed the case, then the English expert should be asked to look at Y7 and confirm that, on the basis of the English practice, the print can be identified as being that of [Ms McKie].
>
> The English expert should be precognosced ....In particular it would be helpful if the expert could explain how the English practice for identifying points of similarity compares (and is more stringent) than the Scottish practice.
>
> On arrest [Ms McKie] should be fingerprinted. The comparison between [Ms McKie]'s prints and Y7 by the English expert should be on the basis of the prints taken from [Ms McKie] on arrest."

10.61. Ms Climie drew the attention of the Inquiry to the conditionality of the instruction as regards re-comparison. The first question was whether the English practice for identifying points of similarity was more stringent. If so, then the check was required. If it was not then no check was required. No general cross check was envisaged, if it had been she would have asked for this to be done whatever the case was.[116] The need for a cross check of Y7 had been ruled out.[117]

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113 CO_3929
114 CO_3928
115 Quoted at paragraph 44 above
116 Ms Climie 2 July page 44
117 Ms Climie 2 July page 67

10.62. The letter contained a further instruction in these terms: "In addition you should instruct the Scottish fingerprint experts to carry out a further comparison of Y7 against the prints taken from [Ms McKie] on arrest." This was not viewed by Ms Climie as a legal requirement, but was viewed as a cross check of the identification.[118]

Ms McKie placed on petition

10.63. Ms McKie was placed on petition on 6 March 1998 and released on bail. She had to be brought to trial within twelve months, unless, as happened, the court adjourned the first trial diet and extended the time bar. A form F32 with the date 15 March 1998[119] recorded that the time bar was due to expire on 6 March 1999.[120]

Failure to exhaust instructions

10.64. In the event no fingerprint examiner from outside SCRO carried out a comparison of Y7 on behalf of the prosecution. I examined closely how this failure occurred.

April-May 1998: the instruction of and production of Mr Kent's report

10.65. Mr Terence Kent was at this time the Head of the Crime Investigation Sector and IT at the Home Office Police Scientific Development Branch.[121] Mrs Greaves said that she thought that Mr Kent was an expert on transplanted and fake prints and that he would also be in position to look at the comparison of the print Y7.[122] The suggestion of Mr Kent's name seems to have come from Mr Hogg, who had looked at the possibility of planting and believed that he gave Mrs Greaves a report on the subject.[123]

10.66. Mr Kent was instructed by letter[124] from Mrs Greaves dated 12 March 1998.[125] The letter referred to previous telephone conversations. Mrs Greaves had discussions with Mr Kent around this time but she had no recollection of any discussion with him regarding the terms of the instructions.[126] The only discussion she could recall was about the logistics of delivering the door-frame to him.[127]

10.67. The points that she instructed be covered in a report by Mr Kent were as follows:

> "(1) A narration of your expertise relative to fingerprints;
>
> (2) An analysis of fingerprint planting and manufacture;
>
> (3) The quality of the fingerprint Y7;
>
> (4) Any concerns that you may have regarding the fingerprint Y7;
>
> (5) Any comment that you may wish to make on the SCRO 16 point comparison of fingerprints and the statistical basis for duplication of fingerprints;

118 Ms Climie 2 July page 50
119 CO_3921 pdf pages 4-5
120 Mrs Greaves 1 July page 47
121 FI_0052 paras 1-2 Inquiry Witness Statement of Mr Kent
122 Mrs Greaves 1 July page 73
123 FI_0034 paras 61-63 Inquiry Witness Statement of Mr Hogg
124 HO_0053
125 Mrs Greaves 1 July page 81
126 FI_0038 paras 9-10 Inquiry Witness Statement of Mr Hogg
127 FI_0038 paras 9-10 Inquiry Witness Statement of Mr Hogg

(6) If you are able to make any comment on the identity of the fingerprint compared with [Ms McKie]'s fingerprint form this should also be included."

10.68. Mrs Greaves explained to the Inquiry what she meant by points 2-6 and gave further detail about the letter.[128]

- Point 2 related to faking and planting.
- Points 3 and 4 did not relate solely to planting.
- Point 3 was "overarching perhaps for everything".
- Point 4 was to capture any issues Mr Kent might raise.
- The first part of point 5 concerned the 100% reliability of the 16-point standard and the second part related to faking. She did not think that it related to the statistical basis for concluding that two individuals do not have the same fingerprint. Mrs Greaves did not recollect considering that issue.
- Point 5 also related to whether the 16-point comparison was reliable and whether or not it was the best method of comparison that was available.
- Point 6 reflected her wish that Mr Kent carry out a comparison between Y7 and the fingerprint form.

10.69. The terms of Mrs Greaves' letter to Mr Kent did not match precisely the "shopping list" in Ms Climie's letter of 30 January. This is apparent with hindsight. Given, however, that neither doubted the reliability of fingerprint evidence, it is open to question whether the significance of the differences between the two instructions would have been fully appreciated at the time.

Progress

10.70. On 3 April 1998 Ms Climie wrote to the procurator fiscal, Glasgow asking for an indication as to when the finalised Precognition would be submitted.[129] On 15 April 1998 Mrs Greaves wrote to Mr Kent.[130] She asked Mr Kent to contact her and asked when the report was likely to be submitted. Mrs Greaves responded to Ms Climie by letter of the same date. She wrote that she had been unable to contact Mr Kent by telephone and that she had written to him asking him (i) when the report would be likely to be ready and (ii) to discuss the matter with her.[131] Mrs Greaves wrote to Mr Kent again on 22 April 1988.[132] The letter refers to a telephone conversation. Mrs Greaves had no recollection of this conversation.[133]

Receipt of Mr Kent's report

10.71. Mr Kent's report was dated 13 May 1998.[134] In due course it was lodged as a production by the Crown in *HMA v McKie*.[135] It should be noted that Mr Kent said that the possibility that SCRO had made a mistake did not occur to him until the trial.[136]

128 Mrs Greaves 1 July page 82
129 CO_3924
130 FI_0038 para 10 Inquiry Witness Statement of Mrs Greaves, CO_3468
131 CO_3467 and CO_3476
132 FI_0038 para 10 Inquiry Witness Statement of Mrs Greaves, CO_3466
133 FI_0038 para 10 Inquiry Witness Statement of Mrs Greaves
134 CO_3876
135 Production 186
136 FI_0052 para 27 Inquiry Witness Statement of Mr Kent

10.72. Two points emerge from the report:

- Mr Kent's opinion was that Y7 was likely to have been deposited after the SOCOs had applied aluminium powder to the door-frame.
- He discounted the suggestion that Y7 was a forgery; in his opinion Y7 had been left in the normal way by a finger.

10.73. Not all of the points raised in Ms Climie's letter of 30 January 1998 were dealt with in the report.

- Ms Climie's letter requested an expert opinion on "[t]he general basis for concluding that fingerprint identification is 100% reliable". Mr Kent's report did not provide an opinion on this matter and made no mention of it. This is not surprising, as Mrs Greaves' letter made no express mention of it.
- Ms Climie's letter also requested a comparison of Y7 if English standards were different. Mr Kent did not carry out a comparison of Y7 with Ms McKie's prints. Paragraph 33 of Mr Kent's report states that he was not qualified to express an opinion on the identification of Y7, by necessary implication indicating that he could not comment on point 6 of Mrs Greaves' letter.

10.74. Mr Kent's report also made no comment about point 5 in Mrs Greaves' letter of instruction: the SCRO 16-point comparison of fingerprints and the statistical basis for duplication of fingerprints.

Instructions from Crown Counsel

10.75. The issues raised in the letter of instruction to Mr Kent derived from instructions given by Crown Counsel. Mr Murphy explained the hierarchical structure within Crown Office: matters such as this were for Crown Counsel and not left to the discretion of procurator fiscal deputes. A duty advocate depute's instruction was a direct instruction to the High Court Unit from Crown Counsel and one would expect it to be implemented exactly as it stood.[137] Mr Murphy explained that if the matter was to be dropped or amended it should have been raised with an advocate depute.[138] If instructions of Crown Counsel had not been carried out that would be picked up by the fiscal or referred back to the original Crown Counsel for further instruction.[139]

10.76. Reflecting that background, and given that Mr Kent had not exhausted the points raised in the letter of instruction, Mrs Greaves had the option of either continuing to investigate matters, perhaps with a further expert, or to seek further instructions from Crown Office. She adopted that second course.

10.77. Mrs Greaves copied Mr Kent's report to Crown Office under cover of her letter of 15 May 1998.[140] She sought comment and further instructions. She highlighted one specific matter in the report. As Mrs Greaves observed, the fact that the subsequent dusting with black powder had disclosed not only Y7 but also other marks identified as having been made by Miss Ross cast considerable doubt on Mr Kent's conclusion that Y7 must have been deposited after the SOCOs had treated the door-frame with aluminium powder. Mrs Greaves' expectation was that she

137 Sheriff Murphy 25 June page 55
138 Sheriff Murphy 25 June page 57
139 Sheriff Murphy 25 June page 82
140 CO_3463

would be asked to do further work in relation to his report, to precognosce Mr Kent, and perhaps further investigations would be required, for instance, speaking to an independent expert. This did not take place.[141]

10.78. Mrs Greaves said that whilst she did not refer in the letter to the fact that Mr Kent had not compared Y7 she discussed the lack of a comparison with Ms Climie.[142] She emphasised that Mr Kent's report referred to the lack of a comparison by him. That was one of the things that Crown Counsel had initially instructed to be done. Her recollection was that she discussed things informally with Ms Climie as well as putting them down in letters.[143] She asked Ms Climie whether she should obtain a further expert report on the issue. She did not receive an instruction.[144] The decision as to how to proceed was for Crown Counsel. She expected that Ms Climie would liaise with Crown Counsel to obtain such instructions.[145] Her opinion was that it was necessary to get a further view on the identification of Y7 and she thinks that she told Ms Climie this.[146] She regarded the need for a further expert opinion as a matter for Crown Counsel to consider.[147]

10.79. Ms Climie said that she had no recollection of seeing Mr Kent's report or Mrs Greaves' correspondence about Mr Kent's report.[148] She had no recollection of any discussions with Mrs Greaves about the fact that Mr Kent was unable to give a view on the identification. Ms Climie doubted that such discussions took place. The reason for this was that Mrs Greaves' letter of 15 May to Ms Climie did not mention the lack of a comparison.[149] It must also be noted that Ms Climie had moved from being an indicter in early October 1998 and she explained that the move was planned to be in June or July 1998 but was postponed.[150] She suggested that it may be that around April 1998 the responsibility for the McKie case was transferred to someone else, although she could not be sure.[151] Mrs Greaves accepted that it was possible that somebody else was involved; however she could not remember dealing with anyone else.[152] The fact that correspondence was addressed to Ms Climie does not necessarily mean that she was then dealing with the substance of the matter at Crown Office.

10.80. It is at this point that the gap in the Crown Office material becomes critical. From such papers as have been provided it is clear that there was a wider context to the discussion of the terms of Mr Kent's report.

141 Mrs Greaves 1 July page 110
142 Mrs Greaves 1 July page 90
143 Mrs Greaves 1 July pages 116-117
144 FI_0038 para 11 Inquiry Witness Statement of Mrs Greaves
145 Mrs Greaves 1 July page 92
146 FI_0038 para 11 Inquiry Witness Statement of Mrs Greaves
147 FI_0038 para 11 Inquiry Witness Statement of Mrs Greaves
148 Ms Climie 2 July page 58 and FI_0075 para 9 Inquiry Witness Statement of Ms Climie
149 FI_0075 para 14 Inquiry Witness Statement of Ms Climie
150 FI_0075 paras 4-7 Inquiry Witness Statement of Ms Climie
151 FI_0075 para 13 Inquiry Witness Statement of Ms Climie
152 Mrs Greaves 1 July page 97

Mr and Ms McKie and Mr Swann, Implementation of Crown Counsel's instructions after Mr Kent's report was issued

10.81. By this time Ms McKie had engaged Levy & McRae, solicitors, to act for her in connection with the criminal proceedings.

10.82. Around May 1998 Mr McKie and Ms McKie contacted Mr Swann. Mr Swann is a fingerprint examiner from Yorkshire of many years' experience. He had held the rank of Superintendent and had been an advisor to the Home Office on fingerprints. Mr and Ms McKie met Mr Swann in his office at Wakefield in May 1998.[153] They had a full discussion about the work they wished him to carry out.[154] They requested that Mr Swann act as Ms McKie's defence expert and carry out an examination of the productions to ascertain if the print Y7 had been forged or transplanted at the scene.[155] Mr Swann said they spent the better part of the day discussing fingerprint evidence with him and the possibility of fingerprints being lifted, transplanted and forged. At that stage, neither Ms McKie nor Mr McKie made any allegations against SCRO and appeared to have high regard for the expertise of its fingerprint officers.[156]

10.83. Levy & McRae first wrote to Mr Swann suggesting the possibility of planting in May, and Mr Swann responded[157] and explained: "I would have to see all exhibits (fingerprint) in the case, documentation relating thereto, disposal of all marks and be provided with appropriate copies thereof."

10.84. Levy & McRae needed to provide Mr Swann with the material that he had requested. Accordingly they wrote to Mrs Greaves confirming that they had appointed a fingerprint expert who had requested access to all productions, including fingerprints.[158] Mrs Greaves replied on 4 June[159] advising that some of the relevant productions had been sent to St Albans (i.e. to Mr Kent) for examination and that a report had been received and was being considered by Crown Counsel. Mrs Greaves wrote: "Once Crown Counsel are satisfied that they do not require any further examination to be carried out then I will arrange for the return of these items."

10.85. On 9 June Mr Watson of Levy & McRae wrote to Mrs Greaves.[160] The letter has a handwritten note made by Mrs Greaves[161] of a discussion with Ms Climie in August: "Spoke to G Climie 18/8 she will re-read report + advise if any further matters require clarification before return of piece of wood + other productions." Ms Climie had no recollection of this call.[162]

153 FI_0181 para 16 Inquiry Witness Statement (Part 1) of of Mr McKie and FI_0149 para 7 Inquiry Witness Statement of Mr Swann
154 FI_0181 para 17 Inquiry Witness Statement (Part 1) of Mr McKie
155 FI_0181 para 18 Inquiry Witness Statement (Part 1) of Mr McKie
156 FI_0149 para 8 Inquiry Witness Statement of Mr Swann
157 DB_0680
158 CO_3462
159 CO_3461
160 CO_3460
161 Mrs Greaves 1 July pages 92-93
162 FI_0075 para 13 Inquiry Witness Statement of Ms Climie

10.86. On 21 August Mrs Greaves wrote to Levy & McRae.[163] The letter recorded that she was awaiting further instructions from Crown Office, following which she would instruct further examination of the productions or request their return. The letter stated: "Last week I was in contact with the Depute at Crown Office regarding this case. She assures me I should have Crown Counsel's instructions within the next 2 weeks. Thereafter, I will either request further examination of the productions which are at PSDB [i.e. Mr Kent's department] or I will arrange for their return to Glasgow."

10.87. On 10 September Mrs Greaves wrote to Ms Climie.[164] The letter asked for confirmation as to whether Crown Counsel was satisfied with Mr Kent's report or if further inquiries were required.[165] It did not list all the outstanding instructions. Ms Climie could not remember seeing this letter.[166]

10.88. A handwritten note by Mrs Greaves[167] records that she spoke with Ms Climie on 29 September about instructions regarding Mr Kent's report. Mrs Greaves was expecting instructions from Crown Counsel.[168] Ms Climie could not remember this call.

10.89. As noted earlier, Ms Climie moved from being an indicter at Crown Office to the Appeals Section in early October.

10.90. Mrs Greaves sent a further letter dated 19 October[169] asking Ms Climie to "advise if Crown Counsel are satisfied with the terms of Terry Kent's report". The letter does not explicitly refer to the instructions that were outstanding from Ms Climie's letter of 30 January. Ms Climie could not remember seeing this letter.[170]

10.91. On 9 November[171] Mrs Greaves wrote to Levy & McRae to advise that she had "now received instructions to request return of the productions from PSDB". She said that she would not have written this without having received instructions, and such instructions would have come, ultimately, from Crown Counsel.[172] She said this meant that she must have received an instruction by 9 November, however she could not remember if this was by phone or letter.

10.92. There is no material in the Crown Office files for either *HMA v Asbury* or *HMA v McKie* covering the period around November 1998.

10.93. The first entry in the Crown Office file for *HMA v McKie* is a letter dated 19 January 1999[173] from Ms Climie to Mrs Greaves advising her that the case was to be indicted for the High Court sitting commencing 1 March 1999 and forwarding a draft indictment for revision. In that letter Ms Climie instructed that Mr Kent's report be

163 CO_3458
164 CO_3456
165 Mrs Greaves 1 July page 93
166 FI_0075 para 9 Inquiry Witness Statement of Ms Climie
167 CO_3788
168 Mrs Greaves 1 July page 94
169 CO_3453
170 FI_0075 para 9 Inquiry Witness Statement of Ms Climie
171 CO_3451
172 Mrs Greaves 1 July page 144
173 CO_4454 and CO_3445

lodged as Production 186 and that letter makes no reference to the need for any further inquiry.

10.94. There were further discussions between Ms Climie and Mrs Greaves prior to finalisation of the indictment. On 25 January 1999[174] Mrs Greaves wrote to Ms Climie referring to previous discussions and confirming that Mrs Greaves had requested SCRO to carry out a comparison of Y7 relative to the fingerprint form taken from Ms McKie on arrest and by letter dated 26 January[175] Mrs Greaves acknowledged that that fingerprint form was to be Production 187.

10.95. In her evidence at the Inquiry hearing Ms Climie said of her letter of 19 January 1999:

> "I suppose this is really the shopping list letter arising from my indictment work on the McKie case. I was trying to tie off loose ends. Obviously I failed to tie off the end of the Kent report, as you have drawn my attention to, and *if there was not an explicit instruction by Crown Counsel* about that, then I have failed."[176] (Emphasis added)

10.96. This should be read in the light of her statement to the Inquiry in which she said:

> "I am aware that the PF in Glasgow was instructed in January 1998 to have Y7 examined by an English fingerprint expert against Ms McKie's prints (but this was subject to the proviso that the English practice for identifying points of similarity was then more stringent than the Scottish practice, a point upon which I was then, and remain to this day, unclear). It appears that this part of the instruction was not carried out by the PF and that I indicted the case without this evidence. Standing the fact that this was an instruction from Crown Counsel, I can only assume that Crown Counsel had considered the Kent report and were happy for the case to be indicted without further evidence and that this was recorded somewhere in the McKie file."[177]

10.97. Two points should be made for completeness:

- Lord Boyd said he could not remember seeing Mr Kent's report and it would not surprise him if he was not consulted about it. There was no reason for him to be consulted. It was not the role of the Solicitor General to get involved in detailed aspects of case management and preparation.[178]
- When the papers came to Mr Murphy as the advocate depute who was to prosecute the case he saw no need to instruct that an external examiner review the comparison.

Commentary

Failure to instruct a comparison of Y7 by an external fingerprint examiner

10.98. It is particularly unfortunate that there is a gap in the Crown Office papers that might have assisted the recollections of Mrs Greaves and Ms Climie. I am not in

174 CO_3439
175 CO_4487
176 Ms Climie 2 July pages 88-89
177 FI_0075 para 11 Inquiry Witness Statement of Ms Climie
178 FI_0079 paras 30-32 Inquiry Witness Statement of Lord Boyd of Duncansby

these circumstances prepared to make a finding which involves preferring the recollection of one of these witnesses to that of the other. I do not consider, in any event, that it is necessary for me to do so.

10.99. Having reviewed the available papers in relation to both *HMA v Asbury* and *HMA v McKie* it is evident that Ms Climie paid meticulous attention to detail. The same is true of Mrs Greaves who was involved only in the McKie case. The failure to instruct an external review of the comparison is only explicable on the basis given by Ms Climie in her witness statement: there must have been an instruction from Crown Counsel to proceed to indict the case without further evidence. I am entirely satisfied that had there been no instruction to that effect from Crown Counsel Ms Climie and Mrs Greaves would have picked the matter up in the pre-trial preparation from January 1999 and, consequently, I accept Ms Climie's explanation. Though nothing is known of the background to it, that must have been the import of the instruction that had been conveyed to Mrs Greaves by 9 November 1998.

10.100. Responsibility for the failure to instruct an external review of Y7 must lie with Crown Counsel (the identity of the individual counsel in question being unknown) and I conclude that no criticism can be made of either Ms Climie or Mrs Greaves.

Lack of knowledge that some SCRO examiners had not found 16 points in sequence and agreement

10.101. By whomsoever the decision was taken, one point is clear. It was taken in ignorance of the fact that as many as five of the SCRO examiners who had compared Y7 had found fewer than sixteen points in sequence and agreement.[179]

10.102. There was no one individual at the time who was aware of the whole picture concerning the views of the individual examiners but Mr MacPherson was aware that Mr Geddes did not agree with him that there were as many as 16 points in sequence and agreement. Mrs Greaves interviewed Mr MacPherson in late 1997 to precognosce him and Mr MacPherson mentioned that he had worked with Mr Geddes on the case, including going with him to Miss Ross's house when an opportunity was taken to view Y7 on the door-frame.[180] However, Mr MacPherson did not disclose to Mrs Greaves that Mr Geddes had been unable to identify Y7 to the 16-point standard nor did he give her any indication that she would need to precognosce Mr Geddes. Mrs Greaves did not think that she had precognosced Mr Geddes.[181] This is not surprising. Mr Geddes had not signed the report relating to Y7, or the production containing the enlargement of Y7. In the absence of some positive indication from Mr MacPherson that there was anything unusual about Mr Geddes's involvement, there was no reason for Mrs Greaves to precognosce Mr Geddes.

10.103. Mr Foley was one of those who had examined Y7 in the 'blind test'. He was listed as a witness in the indictment for *HMA v McKie*[182] (witness number 35). The witness statement included for him in the Precognition[183] was a copy of a statement

179 See chapter 7 para 192
180 CO_2624 pages 2-3
181 Mrs Greaves 1 July pages 107-108
182 CO_4484
183 CO_2643

that he had given to Mr Malcolm in April 1997 in connection with the incident in 1993 when Ms McKie's prints were found on a production. There is no reference in that statement to any involvement on his part with Y7 and no indication that anyone involved in the conduct of the case (including the defence)[184] was aware of his involvement with that mark.

10.104. Mrs Greaves understood that the fingerprint examiners were working to a standard of 16 points in sequence and agreement. That was, after all, the basis on which the SCRO report dated 10 April 1997[185] (initially prepared for *HMA v Asbury*) had been signed. Ms Climie, likewise, understood that the fingerprint evidence had been checked repeatedly within SCRO at increasing levels of seniority and all such checks had confirmed that the print originated from Ms McKie.[186] She believed that every officer identifying the print had looked at the print independently of everybody else and had identified 16 points. She assumed that the examiners would have identified the same 16 points as well.[187] Ms Climie was unaware that opinions as to the number of matching points in Y7 diverged amongst various examiners. Lord Boyd too was unaware of the range of views held at SCRO.[188]

10.105. Mrs Greaves, Ms Climie and Lord Boyd were asked by the Inquiry what difference disclosure of a fuller picture might have made.

10.106. Mrs Greaves would at the relevant time have sought instructions from Crown Office as to what to do if she had received this information.[189] She explained that disclosure by the Crown to the defence in 1997-1999 did not operate in the way it does now but still she agreed that it would have been important for the defence to be told that there were examiners within SCRO who could not get 16 points.

10.107. Ms Climie's personal assessment was that the prosecution was periled on the fingerprint evidence and had she known that some examiners had identified to less than 16 points, she would probably have recommended to Crown Counsel an independent expert review.[190]

10.108. Lord Boyd explained that it was impossible, even with hindsight, now to say what view would have been taken then had this information been known.[191] A view could have been taken that, largely, the others were supportive of the identification, albeit that they did not reach the 16 points. The information might not have influenced the *original* decision to prosecute, although he would have wanted to make sure that there was disclosure to the defence. He did, though, add that "it might have influenced a later decision", by which he meant that it would have been taken into account by the trial depute (Mr Murphy) when the defence challenge to the identification emerged.

184 See also Chapter 11
185 SG_0409
186 FI_0075 para 22 Inquiry Witness Statement of Ms Climie
187 Ms Climie 2 July page 104
188 Lord Boyd of Duncansby 10 November pages 32-33
189 Mrs Greaves 1 July page 136
190 Ms Climie 2 July pages 94-101
191 Lord Boyd of Duncansby 10 November pages 33-34

Significance of the failure to instruct an external review

10.109. With hindsight, it might be suggested that the failure to instruct a review of the comparison of Y7 by an examiner external to SCRO was a missed opportunity to discover the misidentification before the trial began. However, it is impossible to say what difference such investigations, if carried out, would have made. Having regard to the opinions of Mr Martin Leadbetter, Mr John Berry, two independent fingerprint experts, and Mr Swann it is not possible to know whether another, English, fingerprint examiner would have confirmed or contradicted the view taken by the SCRO examiners.

10.110. It is also salutary to recall that the original decision to instruct a comparison by an English examiner was contingent on a more stringent approach being taken in English practice when counting characteristics relative to the 16-point threshold. Mr Sheppard of the National Training Centre in Durham was asked about this at the hearing. The practice at SCRO was to count a lake and an island as two characteristics each (i.e. a total of four). In English practice:

> "it became policy that only one would be shown, unless you are desperate to find 16 characteristics in coincident sequence; then you were perfectly entitled to use both ends of a independent ridge or a lake."[192]

If there was a surplus of matching characteristics a lake or an island could be counted as only one characteristic leaving the members of the jury to form the view that they could find extra characteristics; but, if necessary, an English examiner could count each as two characteristics towards meeting the minimum 16-point standard.

10.111. On that view, English practice was not necessarily more stringent.

The decision to indict: ought the matter have been referred to Lord Boyd?

10.112. Lord Boyd said that the papers provided to him by the Inquiry did not disclose whether the papers were returned to him for a decision to indict. Lord Boyd had no recollection of giving any instructions in relation to the prosecution of Shirley McKie after January 1998.[193] He could not remember taking a further decision to indict Ms McKie.[194]

10.113. From the papers provided to Lord Boyd by the Inquiry it appeared to him that the decision to place Ms McKie on petition was treated as including a decision to indict. It may have been decided that given that he had seen the entire Precognition when instructing that Ms McKie be placed on petition there was no need for further instruction as to indictment.[195] He had no criticism to make if his original decision to place on petition was understood to be the final decision to indict the case.[196] He expected that the decision to indict would have gone to the duty advocate depute.[197]

192 Mr Sheppard 7 July pages 172-174 at page 174
193 FI_0079 para 29 Inquiry Witness Statement of Lord Boyd of Duncansby
194 FI_0079 para 28 Inquiry Witness Statement of Lord Boyd of Duncansby
195 FI_0079 para 23 Inquiry Witness Statement of Lord Boyd of Duncansby
196 Lord Boyd of Duncansby 10 November page 24
197 Lord Boyd of Duncansby 10 November page 26

10.114. No criticism arises here of the procedure that was followed. Lord Boyd had taken a decision in January 1998 on the basis of an extensive Precognition. As Lord Boyd said, it was understandable that his January 1998 decision was treated as a final decision encompassing the decision to indict.

The indictment

10.115. The indictment[198] was sent by Ms Climie to the procurator fiscal in Glasgow for service on Ms McKie on 27 January 1999.[199]

198 CO_4484
199 CO_4489

CHAPTER 11

THE PREPARATION OF CROWN AND DEFENCE FINGERPRINT EVIDENCE FOR THE TRIAL IN *HMA v McKIE*

Preparation by the Crown

The information available to Crown Office

11.1. As noted in chapter 10 Crown Office was only made aware of the views of the SCRO examiners who had been signatories to the original report on Y7 prepared for the Asbury trial and in preparing for the trial in *HMA v McKie* Crown Office continued to rely on those examiners.

Materials specific to Y7 prepared for the Crown

11.2. Two joint reports and three books of photographs and enlargements were lodged on behalf of the Crown in respect of Y7 in *HMA v McKie*.

11.3. The first report, Production 154,[1] was dated 10 April 1997. It was accompanied by a book marked "L", Production 152.[2] The productions were signed by Mr Stewart, Mr MacPherson, Mr McKenna and Ms McBride.

(i) This joint report related to the comparison of two photographic images of Y7 (dated 16 January and 18 February 1997) and the elimination fingerprint form for Ms McKie[3] dated 7 February 1997.

(ii) Original actual size prints of each of those photographs were included in Production 152.

(iii) The fingerprint form (actually dated 6 February 1997 but stamped as received at SCRO on 7 February 1997) was Production 153.[4]

(iv) The report referred to charted enlargements in Production 152. The charted enlargement used the image of Y7 numbered UCO1050197Y7 (i.e. dated 16 January 1997) and the left thumb print on the form dated February 1997.

11.4. The second report, Production 190,[5] was dated 29 January 1999 and was signed by the same examiners. It was accompanied by a book marked "L2", Production 189.[6]

(i) This report related to the comparison of two photographic images of Y7 (dated 16 January and 18 February 1997) and the fingerprint form for Ms McKie dated 15 March 1998.

(ii) Original actual size prints of both photographs were included in Production 189.

(iii) The fingerprint form (actually dated 6 March 1998 but stamped as received at SCRO on 15 March 1998) was Production 187.[7]

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1 SG_0409
2 ST_0006h
3 Then named Cardwell
4 ST_0004h
5 SG_0396
6 DB_0012h
7 DB_0009h

(iv) The report referred to charted enlargements in Production 189, based on the image of Y7 numbered UCO105196Y7 (i.e. dated 18 February 1997) and the left thumb print on the form dated March 1998.

11.5. The third book of images was Production 180.[8] It also contained two original one to one size photographs of Y7 and a charted enlargement of the impression numbered "UC01050197 Y7" and Ms McKie's left thumb print.[9] This book was signed by Mr MacPherson and Mr Stewart only, and was not dated.

Explanation for multiple productions

11.6. The fact that SCRO prepared multiple productions was itself considered suspicious by Mr Wertheim, a suspicion compounded by the fact that the last production (189) used separate source materials, the allegation being that there was a pattern of deception in the generation of a succession of reports.[10] On the same theme, staff at the National Training Centre at Durham noted that two of the productions (152 and 180) used the same charting and that was one of the grounds on which they reported that, in the absence of adequate explanation, there appeared to have been "collective manipulation of evidence and collective collusion to erroneously identify" Ms McKie.[11] Given these allegations it was important to establish why these reports were prepared.

11.7. The first report and associated productions were the productions that had been used in the trial in *HMA v Asbury*.[12]

11.8. The second report and its associated productions were prepared specifically for the trial in *HMA v McKie* as a consequence of instructions from Crown Office that the mark be compared with the fingerprints taken when Ms McKie was arrested in March 1998.[13]

11.9. There was some doubt about the explanation for the third book of images, Production 180.

11.10. When Mr MacPherson and Mr Stewart gave their statements to the Inquiry they were unsure why Production 180 came to be prepared.[14] At the hearings, Counsel to the Inquiry put three possible alternatives to them:[15] (i) that the book had been prepared in conjunction with the joint report dated 27 March 1997;[16] (ii) that it might have been intended to illustrate the comparison with the prints of 18 February but in fact used the earlier prints because the 18 February prints had been poorly taken;[17] or (iii) that it might have been prepared for Mr Wilson's disciplinary inquiry.

8 DB_0011h
9 By reference to a form in the name of Shirley Cardwell (D.C.)
10 CO_0003 pdf page 29
11 CO_1318; see chapter 13 para 66
12 See chapter 9 para 41
13 CO_3439 (and see chapter 10 para 62)
14 FI_0036 para 244 Inquiry Witness Statement of Mr Mackenzie and FI_0055 para 167 Inquiry Witness Statement of Mr MacPherson
15 Mr MacPherson 27 October page 115ff and Mr Stewart 5 November page 106ff
16 Mr MacPherson had suggested this might have been the case, FI_0055 para 167 Inquiry Witness Statement of Mr MacPherson.
17 This was a suggestion from Mr Stewart at Ms McKie's trial, SG_0526 pdf page 41

11.11. The copy of the 27 March report was available to the Inquiry.[18] It had "Report without book" written on it, which Mr Stewart had said was a note in his handwriting written when he was collecting evidence for the HMICS Inquiry.[19] That would tend to exclude the first of those possible explanations.

11.12. Counsel to the Inquiry drew attention to Mr Wilson's statement to the Inquiry[20] where, in a reference to the text in his report,[21] he indicated that he had requested a book of photographs. In his report he had recorded that Mr MacPherson had provided it and Mr Stewart had signed it. He said that if anyone else had signed it this would have been recorded. In light of this information both Mr MacPherson and Mr Stewart thought the most likely explanation was that the book of photographs was prepared for Mr Wilson's investigation.[22]

11.13. I accept that this is the most likely explanation for the preparation of a third set of illustrative productions.

Multiple reports and productions

11.14. I am accordingly satisfied that there is a proper explanation for the production of two joint reports and three sets of chartings.

Negatives and additional fingerprint form

11.15. In addition to lodging the books with photographic images (both unmarked originals and charted copies), the Crown also lodged the photographic negatives (Production 172) and Levy & McRae (the solicitors instructed then on behalf of Ms McKie) were in correspondence to secure original photographic images from the negatives.

11.16. Production 179 was a fingerprint form taken from Ms McKie 18 February 1997.[23]

Booklet

11.17. When interviewing Mr Stewart and Mr MacPherson Mrs Greaves did not go into the detail of the 16 points on which the four examiners had relied in coming to their conclusion, but there was some discussion as to how this evidence could be presented to the jury and Mr Stewart offered to provide an additional illustration. He prepared Production 181, a booklet entitled 'A Brief Insight into Fingerprints and Fingerprint Identification' [24] (signed by him and Mr MacPherson) and an accompanying narrative.[25] The booklet contained generic (or non-case specific) materials intended (and in the event used) by Mr Stewart to give the jury a general introduction to the theory underlying fingerprint comparison work and to explain the methodology applied by fingerprint examiners.

SCRO productions: routine evidence

11.18. The preparation of joint reports and supporting productions (including charted enlargements) is explained in chapter 9.

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18 DB_0004
19 FI_0036 para 241 Inquiry Witness Statement of Mr Mackenzie
20 FI_0078 Inquiry Witness Statement of Mr Wilson
21 CO_0345 pdf page 13 at paragraphs 6.43–6.46
22 Mr MacPherson 27 October page 117 and Mr Stewart 5 November page 111
23 DB_0008h – in the name of Shirley Cardwell
24 CO_0201
25 CO_2632

11.19. The joint reports (Productions 154 and 190) followed the pro forma style. That indicates that the fingerprint evidence relative to the identification of Y7 was still being approached as essentially routine and carrying the imputation of infallibility. Even though Mr Stewart and Mr MacPherson had been precognosced by the Crown, that was at a time when the anticipated line of defence, planting, implicitly assumed that the identification was correct.

Defence preparation of fingerprint evidence

April 1998 to February 1999

11.20. Ms McKie instructed Levy & McRae as her solicitors. Mr McKie and Ms McKie had a meeting with Mr Swann in early May 1998[26] with a view to him being appointed to advise on the fingerprint evidence and on 22 May 1998 Levy & McRae confirmed his appointment.[27] From the outset Mr Swann underlined the importance of access to all relevant productions (including fingerprint images[28] and negatives[29]) and that informed the requests by Levy & McRae for access to the productions that are narrated in chapter 10. Mr Swann's work was delayed pending access to the productions.

11.21. At that time Mr Kerrigan Q.C. was instructed as senior counsel for Ms McKie. Mr Kerrigan wrote a note dated 5 November 1998[30] recommending lines of inquiry and this was forwarded to Mr Swann and they had a meeting on 8 December 1998.[31] The note of that meeting does concentrate on planting but it also mentions that Mr Swann was to examine the productions and give a view on whether this was, in fact, Ms McKie's print.[32] However, Mr Kerrigan's note dated 17 December 1998 indicates that follow-up instructions to Mr Swann were being postponed while Mr McKie considered the possibility of using another expert.[33] It was about this time that Mr McKie was first in contact with Mr Wertheim,[34] having seen on the internet a presentation by him on fabrication of prints.[35]

11.22. In this period Levy & McRae had been precognoscing witnesses on the Crown List for the anticipated trial and they took statements from Mr Stewart and Mr Foley. The statement from Mr Stewart[36] contained no more than a reproduction of the contents of the SCRO joint report dated 27 March 1997.[37] The statement from Mr Foley,[38] like the statement from him that Mrs Greaves included in the Crown

26 FI_0181 para 54 Inquiry Witness Statement (Part 1) of Mr McKie and FI_0149 para 8 Inquiry Witness Statement of Mr Swann – see chapter 10 para 82
27 http://www.scottish.parliament.uk/business/committees/justice1/papers-06/peterswannforweb.pdf, page 4
28 DB_0676
29 His letter dated 21 August 1998 at page 8 of the documents on http://www.scottish.parliament.uk/business/committees/justice1/papers-06/peterswannforweb.pdf
30 LM_0092
31 FI_0149 para 9 Inquiry Witness Statement of Mr Swann
32 LM_0095 page 2
33 LM_0096
34 FI_0181 para 27 Inquiry Witness Statement (Part 1) of Mr McKie
35 LM_0100
36 LM_0070
37 DB_0004
38 LM_0072

Precognition, was confined to the previous case in which Ms McKie's print had been found on a production, and made no mention of his involvement with Y7.

February-March 1999: Mr Swann's examinations of the mark

11.23. Ms McKie changed counsel and her counsel for the trial were Mr Donald Findlay Q.C. and Ms Victoria Young, advocate. Mr Findlay was instructed in February 1999, after the indictment was served.

11.24. From January 1999 Levy & McRae renewed the request for access to Crown productions[39] and by letter dated 22 February 1999,[40] in anticipation of a consultation with Mr Swann on 2 March 1999, Levy & McRae requested permission to uplift the copy photographs lodged by the Crown.

11.25. In preparation for that consultation Levy & McRae sent copy productions to Mr Swann under cover of letters dated 22 and 26 February 1999.[41] Mr Swann said that he was asked by Levy & McRae to compare one specific chart,[42] this being a "second or third generation"[43] photocopy of the SCRO charted enlargement in Production 152,[44] similar to the document which he made available to the Inquiry.[45] Consistently with the correspondence summarised above, Mr Swann explained that he had asked at various times to be supplied with original materials and Levy & McRae had tried unsuccessfully to obtain originals.[46] In those circumstances he worked with the copy supplied to him.[47]

11.26. He confirmed that, being a copy of the SCRO charted enlargement in Production 152, the image of the mark was "cut off"[48] (i.e. it did not show the whole mark). In this initial period he did not see a photographic image of the entire mark.[49] As to the quality of the copy, he said in oral evidence that "It was not a particularly clear copy"[50] and described it as "a bit dull and a bit grey";[51] it was not as clear as the original but adequate for the job.[52] Following his normal practice he examined the chart on three alternate days in order to triple check his conclusion.[53] He found 16 ridge characteristics in agreement and was satisfied that it was a positive identification;[54] and he formed a concluded view at that stage[55] before his visit to Glasgow where he examined original materials.

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39 CO_3441, CO_3446 and CO_3514
40 CO_3522
41 FI_0149 para 10 Inquiry Witness Statement of Mr Swann and http://www.scottish.parliament.uk/business/committees/justice1/papers-06/peterswannforweb.pdf, pages 17 and 18
42 Mr Swann 22 October pages 59-60, 67 and Mr Swann 27 November page 4
43 FI_0149 para 10 Inquiry Witness Statement of Mr Swann
44 Mr Swann 27 November pages 6-10
45 TS_0019
46 Mr Swann 22 October pages 72-74
47 Mr Swann 22 October pages 66, 72-74
48 Mr Swann 22 October pages 52-53
49 Mr Swann 22 October page 55
50 Mr Swann 21 October page 7; and see FI_0149 page 5 (para 10) Inquiry Witness Statement of Mr Swann
51 Mr Swann 22 October page 66
52 Mr Swann 27 November page 4
53 Mr Swann 22 October pages 56-57
54 FI_0149 para 10 Inquiry Witness Statement of Mr Swann
55 Mr Swann 22 October pages 56, 63-64 and Mr Swann 27 November page 5

11.27. Subsequently, on 2 March 1999[56] he attended the High Court in Glasgow in order to view the original exhibits (i.e. the door-frame and an actual size photograph of the mark and a fingerprint form). Inspection of the mark on the door-frame satisfied him that it was genuine and when he examined the photograph of the mark and the fingerprint form he was able to find at least 16 ridge characteristics in agreement and identified Y7 as being the left thumb print of Ms McKie. He described the room in the High Court in which he worked as being very small (a storeroom)[57] but adequate for the purposes of inspection and examination. He said that he was accustomed to working at crime scenes where the conditions are frequently difficult.

11.28. Later that day Mr Swann informed Mr Findlay and Ms Young that Y7 was a genuine mark and had been correctly identified by SCRO as belonging to Ms McKie.[58] Mr Findlay recalled meeting Mr Swann and said that Ms McKie would not have been present at this meeting.[59]

11.29. On 3 March 1999 Levy & McRae wrote to Mrs Greaves referring to the actual size images in Production 189 and requesting "first generation copies taken from negatives to ensure the quality of the pictures".[60] There was further correspondence on that matter between Levy & McRae and the fiscal's office on 9[61] and 17 March 1999[62] but the upshot was that, apart from the productions that he examined in Glasgow on 2 March 1999, Mr Swann was not provided with an original image of Y7 to examine. Under cover of a letter dated 3 March[63] Levy & McRae did forward to Mr Swann a set of blue inked original prints of Ms McKie[64] but he said that he could not use them in a comparison because he had nothing (in particular no copy of the mark) to compare them with: "when I left Glasgow nobody would supply me with anything". His reports were, accordingly, based on his initial examination of the copy of the charted enlargement and the examination of the original materials in Glasgow.[65]

11.30. He returned his papers to Levy & McRae and did not retain copies.[66]

5 March 1999: Ms McKie informed of the result

11.31. Mr McKie said that on 5 March 1999 he and Ms McKie were told of Mr Swann's opinion at a meeting with Mr Findlay and the legal team.[67] Ms McKie's account is slightly different, principally as regards timing. She said that Mr Swann carried out examinations in February and shortly after his examination she attended at the offices of her solicitors where she was told that Mr Swann's conclusion was that Y7 was her print. She was "completely devastated".[68] Not much turns on the precise

56 FI_0149 para 11 Inquiry Witness Statement of Mr Swann
57 Mr Swann 22 October page 70
58 FI_0149 para 12 Inquiry Witness Statement of Mr Swann
59 FI_0200 para 8 Inquiry Witness Statement of Mr Findlay
60 CO_4448
61 CO_4447
62 CO_4473
63 TS_0009 and FI_0149 para 14 Inquiry Witness Statement of Mr Swann
64 TS_0010
65 Mr Swann 21 October pages 12-13
66 Mr Swann 27 November page 5
67 FI_0181 para 24 Inquiry Witness Statement of Mr McKie
68 CO_2219 pdf pages 16-17

date. On her own account Ms McKie was aware that Mr Swann had examined the mark and advised that SCRO were correct to say that Y7 was her mark.

11.32. Mr McKie said that after receiving this information he raised various questions for discussion with Mr Swann by way of a paper entitled 'Some Questions to be Answered by the Fingerprint Expert'.[69] The paper was sent under cover of a letter from Ms McKie to Ms McCracken of Levy & McRae.[70] Ms McKie signed a copy of that letter[71] but it may be the case, on her evidence, that this document was prepared by Mr McKie and that she signed it without reading it.[72]

11.33. Mr Swann considered these questions but did not change his opinion. He submitted two reports to Levy & McRae dated 16 March 1999. The reports confirmed his findings, in particular that Y7 was made by Ms McKie. One report dealt with his examination of Y7[73] and the other[74] dealt with the questions raised by Ms McKie's letter.[75]

March 1999: Mr Wertheim's examination of Y7

11.34. Mr McKie had searched the internet in an attempt to find experts in the area of the transplanting and forgery of fingerprints. By that means he had identified Mr Pat Wertheim, an American fingerprint examiner. He first made contact with Mr Wertheim by telephone on 23 December 1998. On the same day he wrote to Levy & McRae with Mr Wertheim's contact details, asking them to instruct Mr Wertheim. On 17 February 1999, Mr McKie telephoned Levy & McRae, and was informed that they had not been able to contact Mr Wertheim. Mr McKie then telephoned Mr Wertheim, who said he would be in Scotland in March, and offered to become involved in the case. Mr McKie wrote[76] to Levy & McRae on 18 February 1999 emphasising the importance of Mr Wertheim. He received a letter from Mr Wertheim[77] confirming his willingness to review Y7.[78]

11.35. In March 1999 Mr Wertheim was on holiday in Scotland with his wife, and Mr Grieve, Mr David Ashbaugh, a Canadian fingerprint expert and author of the text book 'Quantitative-Qualitative Friction Ridge Analysis', and their respective spouses. Messrs Wertheim, Grieve and Ashbaugh had been attending a conference.[79]

11.36. On 24 March 1999 Mr Wertheim met with Ms McCracken of Levy & McRae. They attended the High Court in Glasgow where he examined the door-frame and concluded that Y7 was not forged. He took photographs of the mark. He also examined a SCRO charted enlargement. "Within seconds" of examining the SCRO charted enlargement he began to have very serious doubts about the accuracy

69 FI_0181 paras 24 Inquiry Witness Statement of Mr McKie
70 DB_0703
71 SG_0363
72 FI_0071 page 17 Inquiry Witness Statement of Ms McKie
73 SG_0283
74 SG_0285
75 FI_0149 para 15 Inquiry Witness Statement of Mr Swann
76 DB_0699
77 DB_0704
78 FI_0181 paras 29-31 Inquiry Witness Statement of Mr McKie
79 FI_0118 pdf page 5 Inquiry Witness Statement of Mr Wertheim

of the identification. Thereafter he met Ms McKie and took a large number of fingerprints paying special attention to her left thumb.[80]

11.37. After his first reaction to the identification, Mr Wertheim decided that he had to carry out a complete and thorough analysis of the latent fingerprint without reference to enlargements.[81] He took notes of his examinations and these are at appendix B of his statement to the Inquiry.[82]

11.38. Mr Wertheim thereafter gave Mr Ashbaugh and Mr Grieve each a copy of a photograph of Y7 and a page with a number of inked impressions of Ms McKie's left thumb. He asked them to examine Y7 and the impressions. Mr Ashbaugh did not do so. Mr Wertheim recalled that Mr Ashbaugh left the party the next morning and did not review the material at that stage. Mr Wertheim explained that Mr Ashbaugh felt it inappropriate to become involved.[83]

11.39. On 26 March 1999 Mr Wertheim met with Mr Findlay and told him that Y7 was not made by Ms McKie.[84]

11.40. Mr Grieve also examined the mark. Mr Wertheim said that they did not discuss the mark.[85] Mr Grieve then met Mr Findlay.[86]

11.41. Ms McKie said she was told that Mr Wertheim's opinion was that Y7 was not her mark and "broke down with sheer relief".[87]

Damage to the mark

11.42. Mr Wertheim's photographs of Y7 show a smear or some striations on the mark. This damage does not appear on earlier photographs. The latest set of photographs that do not show the damage are those taken by Mr Kent in 1998. There is no evidence that the mark was photographed after Mr Kent photographed it and before Mr Wertheim photographed it.

11.43. Mr Wertheim denied damaging the mark and stressed that he was careful in his handling of it.[88] He said that the damage had already taken place when he came to examine the mark.[89]

11.44. Mr MacPherson and Ms McBride described the damage as appearing as though it was made by a brush stroke.[90]

80 FI_0118 pdf page 5 Inquiry Witness Statement of Mr Wertheim
81 Mr Wertheim 22 September page 76
82 FI_0118 pdf page 24ff Inquiry Witness Statement of Mr Wertheim
83 FI_0118 pdf page 6 Inquiry Witness Statement of Mr Wertheim
84 FI_0118 pdf page 6 Inquiry Witness Statement of Mr Wertheim
85 FI_0118 pdf page 6 Inquiry Witness Statement of Mr Wertheim
86 FI_0118 pdf page 6 Inquiry Witness Statement of Mr Wertheim. CO_1017 Mackay enquiry statement of Mr Grieve records that he examined the mark and print and confirmed to Mr Wertheim that Y7 was not made by Ms McKie and then met with Mr Findlay on 28 March 1999. Mr Grieve then continued his examination and thereafter provided a written report to Ms McCracken.
87 CO_2219 pdf page 17
88 Mr Wertheim 22 September page 80
89 Mr Wertheim 22 September page 81
90 FI_0055 para 172 Inquiry Witness Statement of Mr MacPherson and FI_0031 para 137 Mr Wertheim Phase 2 Comparative Exercise

11.45. Dr Bleay examined the damage. He said that the damage could have been caused by a brush. He also noted that a piece of string was attached to the wood. This looked like it was from an exhibit or production label. Dr Bleay said that this piece of string might account for the damage, however it could have a variety of causes.[91]

11.46. As to whether the damage was material, Mr Sheppard said that the damage did not prevent examination of the mark[92] and "in actual fact it had not done any real damage to the impression whatsoever".[93]

Commentary

11.47. Mr Wertheim states that he did not damage the mark. Mr Wertheim had, by the time he came to examine Y7, many years experience. There is no evidence to suggest that he damaged the mark or that he had any reason to do so.

11.48. There are a number of potential explanations for the damage, including the presence of a piece of string. I make no finding as to what did damage it. In any event, I accept Mr Sheppard's evidence which was that the damage was of no real consequence.

Late March 1999: Crown preparation for the trial

11.49. The trial had initially been assigned to a sitting of the High Court[94] commencing 1 March but was adjourned to the sitting starting on 12 April and began on 21 April. Mr Murphy was the trial advocate depute. This meant that he would conduct the prosecution in court. His involvement began when he received a set of papers for the trial. It is not entirely clear when Mr Murphy received the papers. He was able to say that he must have received the papers before 30 March 1999, when he met with Mr MacPherson and Mr Stewart.[95] He said that his earliest involvement was probably two or three weeks before the trial, which is consistent with receiving the papers around the end of March. He had no involvement in the case before then.[96]

11.50. The papers delivered to Mr Murphy, were the indictment, the Precognition and the Crown Office file for the case.

11.51. Mr Murphy said that ideally a trial advocate depute would not need to look at material outside the Precognition. It should have contained all the information required to conduct the trial.[97] Broadly speaking the case was meant to be fully prepared for trial by the time that the papers were delivered to the trial advocate depute. There should not have been decisions of an important nature remaining to be taken.[98] Mrs Greaves agreed that the Precognition as provided to the trial advocate depute was a self-contained master set of all that he or she might require in the conduct of the case.[99]

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91 Dr Bleay 16 November pages 135-137 and EA_0067 pdf page 5
92 FI_0082 para 38 Inquiry Witness Statement of Mr Sheppard
93 Mr Sheppard 8 July page 23
94 At that time "trials were organised in two week sittings with perhaps six or eight cases", Sheriff Murphy 25 June page 2.
95 Sheriff Murphy 25 June page 162
96 Sheriff Murphy 25 June pages 1-2
97 Sheriff Murphy 25 June page 6
98 Sheriff Murphy 25 June page 3
99 Mrs Greaves 1 July page 54

Mr Murphy's analysis

11.52. From Mr Murphy's point of view there were two strands of evidence in the Crown case. The first was evidence from one of the police officers (Mr Kerr) who had seen Ms McKie at the locus when, according to other material, she should not have been there. The second was the discovery of Y7 and its identification as Ms McKie's mark.[100]

Instruction of English expert

11.53. Mr Murphy could remember no personal involvement in relation to the previous consideration of the possible instruction of a review of Y7 by an English expert.[101] The fact that an independent expert had not been instructed was not something that he explored in preparing for the trial. Insofar as that exercise was not completed when Mr Murphy received the papers he would have assumed that the case was "put to bed and ready to go". He would have considered the evidence available. He had sufficient evidence available and so proceeded.[102]

30 March meeting with Mr MacPherson and Mr Stewart

11.54. The consideration of fingerprint evidence formed an important part of Mr Murphy's work in preparing for the trial. This involved two meetings with Mr MacPherson and Mr Stewart.

11.55. Mr Murphy's evidence was that the first of those meetings took place at SCRO on 30 March 1999.[103] He believed that by that stage he was aware that the identification of Y7 was to be challenged by the defence, and this was one reason for seeing the SCRO experts.[104] However, he was not entirely sure if this was the case.[105] It was likely that he would have seen them in any event because he habitually consulted with experts before a trial.[106] Mr Murphy noted at this meeting that Mr MacPherson and Mr Stewart told him they would like time to consider the defence materials and methodology and he said it was his practice to put defence materials to his own experts.[107]

11.56. Mr Stewart had no memory of this meeting.[108] Mr MacPherson also had no recollection of this meeting, but accepted that it may have occurred.[109]

Commentary

11.57. Although only Mr Murphy now remembers this meeting, I accept that a meeting occurred on 30 March. Mr Murphy spoke in evidence to his notebook indicating his having gone to SCRO on that date.[110]

100 Sheriff Murphy 25 June pages 18-24
101 Sheriff Murphy 25 June page 86; see chapter 10
102 Sheriff Murphy 25 June pages 100-101
103 FI_0070 paras 3-4 Inquiry Witness Statement of Sheriff Murphy
104 Mr Findlay knew of Mr Wertheim's view on 26 March, so it is possible that he would have disclosed the broad nature of the challenge before 30 March.
105 Sheriff Murphy 25 June pages 180-181
106 Sheriff Murphy 25 June page 18
107 FI_0070 para 4 Inquiry Witness Statement of Sheriff Murphy
108 Mr Stewart 5 November pages 131-132
109 Mr MacPherson 27 October page 125
110 Sheriff Murphy 25 June page 10

2 - 13 April 1999: defence preparation of fingerprint evidence

11.58. Mr Grieve's findings were set out in a letter to Levy & McRae dated 11 April 1999[111] but that letter was not lodged as a production at the trial.

11.59. Mr Wertheim prepared two reports, dated 2 April[112] and 12 April.[113] He also prepared an illustrative booklet. His report of 12 April 1999 was accompanied by a fax[114] which included six suggested areas for questions prepared by Mr Wertheim. An undated note shows that Mr Findlay consulted with Mr Wertheim by video conference. The note shows that lines of questions were discussed.[115] It appears from contemporaneous correspondence[116] that this occurred around 10 April 1999.

11.60. Both reports by Mr Wertheim set out a detailed critique of the sixteen points identified by SCRO in the charted enlargement in Production 189.[117] In that regard, the second report was, to some extent, a refinement of the analysis in the first and proceeded on the basis that five of the sixteen points in Production 189 might be considered to be a target group that matched, not exactly, but "within tolerance". This is considered in the chapter[118] dealing with Mr Wertheim's evidence at the trial.

11.61. In both reports Mr Wertheim went on to discuss numerous points of dissimilarity.

11.62. The reports were not lodged as productions at the trial but the illustrative booklet was lodged (defence production 2).[119] It had, on one side, an enlargement of one of the photographs of Y7 that Mr Wertheim had taken and, on the opposing page, an enlarged image of Ms McKie's left thumb print also taken by Mr Wertheim.[120] There was a series of marked up acetate overlays to pin-point detail of relevance to Mr Wertheim.

Crown's emerging awareness of the defence position

11.63. The Crown Office file, that had not become available at the time of the Inquiry hearing and therefore was not discussed by Mr Murphy, contains an undated manuscript note for the advocate depute for the sitting of 12 April:

> "Defence have conducted an audit of the fingerprint evidence here & will have a US expert to call. No doubt the methodology or techniques will be criticised but it is doubtful that this will materially affect the evidential conclusions. S67 Notice adds Pros [i.e. Productions] 189-191 the essential evidence!"[121]

111 LM_0105
112 DB_0167
113 DB_0168
114 LM_0106
115 LM_0107
116 CO_1464
117 DB_0012h
118 See chapter 12
119 DB_0172h
120 The significance of this thumb print is discussed in chapter 25.
121 CO_4464

11.64. The file also contains a memorandum[122] dated 12 April by Mr Hogg to Mr Bradley, a procurator fiscal depute, which indicates that Mr Hogg was asked on 9 April to make enquiries about Mr Wertheim. By 9 April, at latest, the Crown must have known of the involvement of Mr Wertheim and Mr Hogg's memo reported that Mr Grieve may also have been asked to examine the print.

Mr Murphy advised of defence fingerprint evidence

11.65. Mr Murphy's recollection as to when he first became aware that the defence were challenging the identification was unclear. When he obtained the Precognition he knew that the defence were awaiting papers from American experts. He also said that he was aware that there was going to be argument about whether the identification of Y7 was correct as opposed to how the fingerprint was placed at the locus.[123]

11.66. Mr Murphy's statement to the Mackay enquiry[124] records that he met with Mr Findlay sometime around 16 April 1999 and Mr Findlay outlined at that stage that the defence's position was that there had been a misidentification. In that statement he said that it was at that point that he became aware that the argument was that there was a misidentification. Mr Murphy accepted that his statement to the Mackay enquiry could be an accurate reflection of his position and it may be that he did not know about the misidentification argument when he met with Mr MacPherson and Mr Stewart on 30 March 1999.[125] An account of meeting Mr Findlay on 16 April is consistent with Mr Murphy's account that he may have received the defence production on the Friday before the trial started. Mr Murphy's note to the Home Advocate Depute and the Deputy Crown Agent of 3 June 1999[126] records that Mr Findlay discussed the fingerprint evidence in some detail with him. Detailed discussion is more likely to have taken place after Mr Findlay had received Mr Wertheim's reports and had the video conference with him.

11.67. Mr Murphy said in evidence that he may have had more than one discussion with Mr Findlay and, as noted, the Crown had some awareness of the involvement of at least Mr Wertheim by 9 April at latest.

11.68. Mr Murphy recalled seeing defence production 2 before the trial.[127] He believed that he obtained a copy at a very late stage, possibly on the Friday (16 April) before the trial.[128]

11.69. Mr Murphy could not recall seeing Mr Wertheim's two reports but believed he might have seen them, or something very similar.[129] In his note to the Home Advocate Depute and Deputy Crown Agent of 3 June 1999 Mr Murphy recorded that the defence did not lodge any reports from Mr Wertheim or Mr Grieve before the trial. Reference to the Crown Office file now shows that on 5 May 1999 (the second day of Mr Stewart's evidence) the Crown Junior, Mark Dennis, advocate, recorded in a

122 CO_4467
123 Sheriff Murphy 25 June pages 11-12
124 CO_2036
125 Sheriff Murphy 25 June page 183
126 CO_2036
127 Sheriff Murphy 25 June pages 30-31 and DB_0172h
128 FI_0070 para 7 Inquiry Witness Statement of Sheriff Murphy
129 Sheriff Murphy 25 June page 32

letter that the Crown had not been provided with any CV or report from the defence expert.[130] It appears, therefore, that the reports were not shown to Mr Murphy. The SCRO examiners would, in consequence, have had no opportunity to consider them. Their knowledge of the basis of the defence challenge would have been based on what they could glean from defence production 2.

Meeting with Mr MacPherson and Mr Stewart to discuss the defence production

11.70. The arrival of the defence production and the disclosure of the defence position prompted a further meeting between Mr Murphy, Mr MacPherson and Mr Stewart. It was at this point that Mr Stewart became aware that the challenge was to the identification and not the planting of the mark.[131]

11.71. The attendees' respective recollections about various aspects of this meeting differ.

11.72. There is agreement as to the location of the meeting and the attendees. The meeting took place in a court room at the High Court of Justiciary at Saltmarket in Glasgow.[132] Mr MacPherson and Mr Stewart met with Mr Murphy. Ms McBride did not attend.

11.73. There is disagreement over the date of the meeting. Mr Murphy said that the meeting took place before the trial began. The trial started on Wednesday 21 April. Mr Stewart's evidence began on Tuesday 4 May. Mr Stewart said that he was not told about the defence experts' opinions until about a day or two before he was due to give evidence[133] although at other times he said that the meeting was before the trial.[134]

11.74. There was disagreement about the duration of the meeting. Mr Murphy was unable to say how long this meeting lasted but he was certain that it lasted longer than ten minutes. The SCRO officers were there for quite some time.[135] Mr MacPherson said that there was a brief meeting before the case regarding the fact that there was an expert who disagreed with the SCRO opinion on Y7.[136] Mr Stewart said the meeting was short.[137] Mr Murphy's statement to the Mackay enquiry dated 6 September 2000,[138] said that they spent the best part of an afternoon in discussions at the High Court. Mr Stewart accepted that Mr Murphy's recollection in this statement could be more accurate.[139]

11.75. There is disagreement about the extent of examination of and discussion about the defence production. Mr Murphy remembered the SCRO officers arriving with magnifying equipment "on feet" and he sat with Mr MacPherson and Mr Stewart as they went through a process of placing the acetates over the images and gave

130 CO_4444
131 FI_0036 Inquiry Witness Statement of Mr Stewart
132 Mr Stewart 5 November page 79, Sheriff Murphy 25 June pages 32-33 and FI_0070 para 7 Inquiry Witness Statement of Sheriff Murphy
133 Mr Stewart 5 November page 88
134 Mr Stewart 5 November page 132
135 Sheriff Murphy 25 June pages 32-34
136 FI_0055 para 172 Inquiry Witness Statement of Mr MacPherson
137 Mr Stewart 5 November pages 79, 86–91
138 CO_2036
139 Mr Stewart 5 November pages 180-182

him their comments.[140] This is consistent with a review of defence production 2. Responding to Mr Stewart's evidence that the meeting was brief and that he did not have an opportunity to study the production in detail, Mr Murphy explained that the whole point of bringing the SCRO officers to the High Court was so that they could examine the defence production and it was a matter for them how long they needed to spend with them. He was not the expert in this context and the idea was that they would spend as long as required and then go through any points with him.[141]

11.76. Mr MacPherson did not recall a discussion about the basis for the defence's opinion evidence but remembered being shown Mr Wertheim's enlargement of mark Y7.[142] Mr Stewart remembered being shown a booklet with a couple of photographs and vinyl or acetate overlays but not being given time to examine it.[143] This is again consistent with being shown defence production 2. Mr Stewart said that they were briefly shown the defence productions but were not given an opportunity to examine them in detail. They asked if they could have time to examine this material and Mr Murphy said that he had to give it straight back to the defence.[144] He did not remember examining the defence materials in detail.[145] They did not carry out an examination of the production.[146] Mr Stewart expected to be given a further opportunity to consider the defence productions. He could not remember if he sought a further opportunity or whether the matter was further discussed with Mr Murphy.[147] In an ideal world he would have taken the production away and examined it.[148] Mr Stewart accepted that he could be wrong, that he did have an opportunity to examine the production but that he did not remember having an opportunity to do so. It was possible that Mr Murphy's recollection was better than his.[149]

11.77. There was some agreement about the substance of the discussion. Mr Murphy found Mr Stewart and Mr MacPherson to be fairly confident that they could maintain their position. They were critical of the approach taken by Mr Wertheim.[150] Mr Murphy said that the SCRO officers expressed concerns at the use of the acetate tracings of the ridges. It also appeared to the SCRO officers that Y7 had been damaged, which suggested to them that Mr Wertheim may have lacked expertise in handling productions.[151] This, for the reasons explained above, was a suggestion without proper foundation. Mr MacPherson accepted that Mr Murphy could be right in saying that they discussed whether or not it was appropriate to use a tracing process on acetate and that reference was made to striations on the image that Mr Wertheim had used.[152]

140 Sheriff Murphy 25 June pages 32-34 and FI_0070 para 7 Inquiry Witness Statement of Sheriff Murphy
141 Sheriff Murphy 25 June pages 143-144
142 FI_0055 para 172 Inquiry Witness Statement of Mr MacPherson
143 Mr Stewart 5 November page 87
144 Mr Stewart 5 November pages 79, 141-142
145 Mr Stewart 5 November page 88
146 Mr Stewart 5 November pages 79, 86–91
147 Mr Stewart 5 November pages 145-146
148 Mr Stewart 5 November page 152
149 Mr Stewart 5 November pages 177-178
150 Sheriff Murphy 25 June pages 37-39
151 Sheriff Murphy 25 June page 38
152 Mr MacPherson 27 October page 127

11.78. Mr Stewart did say, however, that he was not asked for any advice by Mr Murphy about the case. He could not remember any discussions about how the fingerprint evidence was to be addressed.[153] Mr MacPherson said that there was no discussion as to the best way to present his evidence.[154] Mr Stewart could not remember asking for guidance from the Crown as to how he should handle the position, and he assumed that the Crown would give guidance if required.[155]

11.79. Mr Murphy's position was that there had been discussions as regards the way in which fingerprint evidence was to be presented.[156] He noted that the transcript of the trial shows a lengthy part of Mr Stewart's evidence consisted of a "tutorial" on fingerprints. In fairness to Mr Stewart and Mr MacPherson that may have derived more from the first meeting on 30 March before the defence challenge emerged.

Mr Murphy's decision not to seek an adjournment

11.80. The defence production was late and possibly lodged after the statutory time limit. The trial had already been adjourned once. Mr Murphy said that the Crown would not normally object to the late production of expert materials if they knew that they were expected.[157] It was always open to the Crown to seek an adjournment of the trial.

11.81. Lord Boyd had no recollection of being consulted after the defence intimated to Mr Murphy that the nature of the defence was going to change and was going to change to a suggestion of misidentification. There would have been no need for Mr Murphy to consult with him. Save for cases of murder or rape, once the case had passed to an advocate depute, it was that depute's responsibility to take the decisions in relation to it. If the advocate depute had consulted with two of the four fingerprint examiners and was led to believe that they were confident of their ability to meet the challenge Lord Boyd would have had no concerns about the advocate depute proceeding with the trial.[158] It was understandable that the Crown would nonetheless proceed to trial when experts disagreed. Experts often disagree with each other. It was highly unusual to have a challenge of this nature to a fingerprint, but it was not unusual to have experts disagreeing and it then became a matter for the jury.[159]

11.82. Mr Murphy did not seek an adjournment and, instead, decided to get on with the trial.[160] A number of factors informed his judgment. Mr Murphy was mindful that the trial had been adjourned once already and in fairness to the accused she was entitled to have the matter resolved within a reasonable time. All parties were ready for the trial and he could see no reason for further delay.[161] One reason for seeking an adjournment would have been to obtain an opinion from an additional expert to support the SCRO position.[162] Mr Murphy did not consider that necessary because the SCRO examiners were confident of their opinion and, in any event, Mr Murphy

153 FI_0036 paras 55-56 Inquiry Witness Statement of Mr Stewart
154 FI_0055 para 172 Inquiry Witness Statement of Mr MacPherson
155 Mr Stewart 5 November page 147
156 Sheriff Murphy 25 June pages 144-145
157 Sheriff Murphy 25 June page 34
158 Lord Boyd of Duncansby 10 November pages 30-31
159 Lord Boyd of Duncansby 10 November pages 29-32
160 FI_0070 para 8 Inquiry Witness Statement of Sheriff Murphy
161 Sheriff Murphy 25 June page 36 and FI_0070 para 2 Inquiry Witness Statement of Sheriff Murphy
162 Sheriff Murphy 25 June pages 24-25

was not in favour of conducting cases where a large number of competing witnesses were presented to the jury.[163] Another reason for adjournment would have been to give the SCRO officers sufficient time to consider the position but, again, the fact that the SCRO officers appeared confident in their own views after having seen defence production 2 would have given him no reason to seek an adjournment for this purpose. The SCRO officers had already had time to consider the position and the process then would have been to ask them to provide any further thoughts that they had prior to cross-examination of the defence experts. This was not urgent: the agreed position with the defence was that all of the logging officers would be called to give evidence first, and it was going to take a reasonable time to reach the defence experts.[164]

Non-disclosure of relevant factors

11.83. One factor that had influenced Mr Murphy was that Mr Stewart and Mr MacPherson appeared confident in their opinion. Mr Murphy was asked to elaborate:

> "How did that come across to you?
>
> A. Well, they had identified the 16 points. My understanding was that the four SCRO people (bearing in mind under the procedures four people would have looked at it) had in fact identified amongst the four of them more than 16 points; in other words, it was not the same 16 points necessarily, although they had agreed on examples for the preparation of the court materials and that, therefore, they were very confident that the bottom half section, bottom third really, of the mark Y7 which was substantially free of pressure damage had given them material on which they could make an accurate identification."[165]

11.84. There was nothing in the Precognition to alert Mr Murphy to the fact that other SCRO examiners had not found 16 points. Equally, while one of those officers (Mr Foley) was on the witness list there was nothing to alert Mr Murphy to the fact that he had even had any involvement with Y7.[166]

11.85. Image quality came to be an issue at the trial. As noted in chapter 9, the Inquiry heard evidence of concerns that SCRO examiners had at the time about the quality of charted enlargements. Mr Murphy was aware that the charted enlargements were intended to be only illustrative[167] but no one advised Mr Murphy that there was any inaccuracy or defect in quality in the images. Had that been raised with him he would have been concerned because he would have been setting himself up for a fall by using images that were inadequate.[168]

Citations

11.86. All four SCRO signatories to the reports on Y7, (Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna) were cited to attend court. This was unusual and came about late, probably in response to the change in the defence position.

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163 FI_0070 para 8 Inquiry Witness Statement of Sheriff Murphy
164 Sheriff Murphy 25 June pages 34-35
165 Mr Murphy 25 June pages 39-40
166 See chapter 10 paras 101-103
167 FI_0070 para 5 Inquiry Witness Statement of Mr Murphy
168 FI_0070 para 6 Inquiry Witness Statement of Mr Murphy and Mr Murphy 25 June pages 125-127

11.87. Ms McBride said that it was not normal procedure for four fingerprint experts to be cited for a court case.[169] Usually, as Mr Crowe explained, only one fingerprint examiner witness would be cited for the Crown in the absence of challenge from the defence given the provisions of section 280 of the Criminal Procedure (Scotland) Act 1995.[170]

11.88. Mr MacPherson, Mr Stewart and Ms McBride were all included in the list of witnesses in the indictment,[171] though Ms McBride recalled that she was not actually cited to attend the trial until the last minute.[172] She could not recall when she was cited but it was either close to the trial or after the trial had begun. She said she was cited after Mr MacPherson and Mr Stewart had met Mr Murphy.[173]

11.89. Mr McKenna was not on the original list of witnesses. His recollection was that he was cited a week before the trial started[174] but he did not give evidence because he was ill.[175] He was added to the list of witnesses by a section 67 notice[176] which also added six promotional magazines as productions with a view to the examination of Mr Wertheim.[177] The Crown Office file contains a handwritten note[178] with an instruction for the section 67 notice as "urgent Monday a.m.". It is initialled and ticked, apparently indicating that the instruction had been carried out, with a date "19/4/99" (the Monday before the trial began). The terms of the note indicate that the instruction may have been drafted on Friday 16 April, which again would be consistent with responding to a defence position intimated at about that date.

Steps taken at SCRO after the pre-trial meeting with Mr Murphy

11.90. Mr MacPherson could not recollect returning to the SCRO office and discussing the challenge with anyone.[179] Mr Stewart went back to SCRO intent on seeking guidance. He wanted to discuss the matter with Mr Dunbar (his line manager), whom failing Mr Mackenzie. Neither was available and he told the superintendent in charge of the bureau (Mr Gorman) that there was to be a challenge to the identification in the hope that he would be given guidance but he received none. They were left more or less to their own devices: "It seemed to be it was a unique situation, nobody knew how to handle it and that was it."[180]

11.91. Mr McKenna stated that at some point he attended a meeting with Mr Hogg, Mr MacPherson, Ms McBride and Mr Stewart. It was a two minute meeting at which Mr Hogg explained that Mr Wertheim and Mr Grieve were to be the defence experts.[181] Mr Stewart had no recollection of this meeting.[182]

169 Ms McBride 6 November page 81
170 Sheriff Crowe 2 July page 64
171 CO_4484
172 Ms McBride 6 November pages 105-106
173 Ms McBride 6 November pages 182-183
174 Mr McKenna 6 November page 60
175 Mr McKenna 6 November page 58
176 CO_4446
177 They appear to be the publications mentioned in CO_4467
178 CO_4463
179 Mr MacPherson 3 November pages 88-90
180 Mr Stewart 5 November pages 146-150
181 FI_0054 para 123 Inquiry Witness Statement of Mr McKenna and Mr McKenna 6 November pages 58-59
182 Mr Stewart 5 November page 184

11.92. Ms McBride's position was that she only became aware of the challenge to the identification during the trial and she did not see defence production 2 before it was put to her in the witness box.[183]

11.93. Mr Dunbar would have expected to have been informed about the issue when it arose[184] but he first became aware of the challenge during the trial, as a result of an article in the *Daily Record.*[185] Mr Dunbar said that he remembered speaking to the experts involved once the challenge to the identification had been disclosed. He said the experts were surprised at the challenge.

11.94. Mr Mackenzie similarly appears to have learned of the challenge first from a newspaper report. Nobody came to speak to him about the challenge at that time.[186]

Other enquiries instructed by Mr Murphy

11.95. Mr Murphy did not think that Mr MacPherson and Mr Stewart had heard of Mr Wertheim. Mr Murphy was uncertain about the status of Mr Wertheim in the United States and he asked his junior, Mr Dennis, who had been an attorney in San Diego, to make informal enquiries. Information was received from the office of the District Attorney in San Diego as to the background of Mr Wertheim to the effect that he was a recognised expert.[187]

Discussions with Mr Kent

11.96. Mr Murphy met with Mr Kent before the trial. Mr Kent mentioned a case in England where a fingerprint had been successfully challenged and that fingerprints were routinely challenged in the United States, a matter about which Mr Murphy was aware.[188]

11.97. Mr Kent also spoke about the move away from the 16-point standard. He said that one of the people in the United States that the Home Office had consulted was Mr Grieve, the defence witness, and Mr Murphy was led to understand that he had "a very high formidable degree of expertise in the question of fingerprint identification".[189]

11.98. Mr Kent also expressed concerns about the potential effect of the case on confidence in fingerprint evidence.[190]

Mr Murphy's awareness of other defence experts

11.99. Mrs Greaves was aware of Mr Swann's involvement before the trial. She said that in the lead up to the trial she had a conversation with Ms McCracken of Levy & McRae from which she understood that Mr Swann had confirmed the identification.

183 Ms McBride 6 November pages 185-187 and 11 November page 128ff; and FI_0039 para 137 Inquiry Witness Statement of Ms McBride
184 Mr Dunbar 6 October page 83
185 Mr Dunbar 6 October pages 151 and 164
186 Mr Mackenzie 1 October pages 103-104
187 Sheriff Murphy 25 June page 40
188 FI_0070 para 10 Inquiry Witness Statement of Sheriff Murphy
189 Sheriff Murphy 25 June page 91
190 Sheriff Murphy 25 June page 90

This was possibly around March 1999.[191] She was not actively involved by the time of the trial and was unaware of the challenge to the identification[192] and would, therefore, have been unaware of the possible significance of confirmation by Mr Swann. Ms Climie did not know about Mr Swann's involvement.[193]

11.100. At some point before the start of the trial Mr Murphy became aware that other defence experts may have looked at the mark and confirmed SCRO's findings.[194] This is discussed in chapter 15. He did not seek to adjourn the trial to carry out further investigation with a view to leading any of these defence experts as a witness. Mr Murphy explained that this would have faced difficulties. At that stage the law was not certain as to the propriety of leading a defence witness when the defence had elected not to use the witness.[195] Whilst Mr Murphy accepted that evidence that Mr Swann supported the Crown case would have strengthened it, he noted that the American experts' evidence would have been the same and it would not have "completely changed the landscape".[196] In this regard Mr Murphy was correct.

Commentary

11.101. The defence position changed dramatically when Mr Wertheim examined the mark on 24 March 1999. That was less than three weeks before the start of the sitting of the High Court when the trial was scheduled to take place. From that point both prosecution and defence were dealing with a situation that was unique, at least in Scotland.

11.102. Mr Murphy cannot be criticised for failing to seek an adjournment. He understood the SCRO examiners, Mr Stewart and Mr MacPherson, to be confident of their opinion and they gave him no reason to suppose that more time was required to prepare. In any event, given that the trial had already been adjourned once and that Ms McKie had been placed on petition for more than one year there was a public interest in proceeding with the trial without further delay.

11.103. Equally, there can be no criticism of the Crown failing to instruct an external review of the fingerprint evidence at that stage. The conflict among the fingerprint examiners for the prosecution and the defence was a matter for the jury.

11.104. It is doubtful whether Mr Wertheim's two written reports were disclosed to the Crown but defence production 2 was disclosed and Mr Findlay gave Mr Murphy reasonable notice of the defence challenge. It was unfortunate that Ms McBride was not given an opportunity to study the defence production before she gave evidence. Even though Mr Stewart and Mr MacPherson did see it, in retrospect to call them to a court room at short notice to review defence production 2 gave them a less than ideal opportunity to study what, in reality, was a highly sophisticated illustration. Again, there is no criticism of Mr Murphy because he was working

191 Mrs Greaves 1 July pages 100-102, 113 and 119-120 (in FI_0038 para 19 Inquiry Witness Statement of Mrs Greaves it was dated one year earlier)
192 FI_0038 para 18 Inquiry Witness Statement of Mrs Greaves
193 Ms Climie 2 July pages 107-108
194 Sheriff Murphy 25 June page 169
195 Sheriff Murphy 25 June pages 170-172
196 Sheriff Murphy 25 June pages 173-174

under a time constraint and the SCRO examiners remained 100% confident as to their position. In the light of that, it is not surprising that he did not instruct that any further work be done by them or any of their colleagues.

11.105. It is unlikely that, even with the benefit of more time to prepare, the SCRO witnesses would have been able to present their evidence in a more effective manner. The SCRO examiners were ill-prepared to meet the challenge. Fingerprint evidence having been for so long treated as routine evidence the SCRO examiners had neither the training nor the experience to equip them to justify their opinions. Mr Dunbar and Mr Mackenzie did have recent experience of giving evidence in a case where fingerprint evidence was disputed, *R v McNamee*,[197] but circumstance prevented Mr Stewart from obtaining any guidance from them. In reality the scenario presented in the McKie case by late March 1999 was, for Scotland, unprecedented.

11.106. Lessons have to be learned from these weaknesses in presentational skills but that does not detract from the more fundamental concern that with hindsight, in light of my conclusion in chapter 25, it can be seen that the problem lay in the erroneous identification of Y7 by the SCRO examiners and not in any lack of adequate opportunity to consider and respond to the defence evidence.

197 See chapter 31

CHAPTER 12

THE TRIAL: *HMA v McKIE*

Introduction

12.1. The trial began before Lord Johnston and a jury at the High Court in Glasgow on Wednesday 21 April 1999 and concluded on Friday 14 May 1999. Mr Murphy Q.C. advocate depute appeared with Mr Dennis, advocate, for the Crown. Mr Findlay Q.C. appeared with Miss Young, advocate, for Ms McKie, instructed by Levy & McRae, solicitors.

12.2. The charge of perjury alleged that Ms McKie had given evidence in the trial in *HMA v Asbury* that at no time had she gone beyond the porch area of 43 Irvine Road, when in truth she had been beyond the porch and in the vicinity of the bathroom doorway.

12.3. The prosecution case began on 21 April and continued until 7 May. The prosecution led evidence from police officers (including log-keepers), scene of crime officers, a forensic scientist and Mr Dewar, the trial advocate depute in the trial in *HMA v Asbury*. Three of the four SCRO fingerprint examiners who had signed the joint reports gave evidence at the end of the prosecution case between 4 May and 7 May.

12.4. After the case for the prosecution, the defence led evidence from two police officers, Ms McKie and the two defence fingerprint examiners, Mr Wertheim and Mr Grieve.

12.5. Mr Murphy and Mr Findlay made their speeches to the jury on 13 May. Lord Johnston delivered his charge to the jury on 14 May. The jury then retired to consider its verdict. The jury gave its verdict on the same day, finding Ms McKie not guilty.

12.6. The Inquiry had access to transcripts of the evidence of a limited number of the witnesses, including all the fingerprint examiners and Ms McKie, and also a transcript of Lord Johnston's charge to the jury. The Inquiry also had a detailed contemporaneous record of the trial compiled by Mr Carle, who attended the trial as an observer on behalf of Strathclyde Police.[1] The order of witnesses and relevant references to these documents are noted in Appendix 8.

The evidence of Mr Shields, Mr Kerr and Mr Lees

12.7. The Crown case was that the fingerprint evidence could be supported by the evidence of Mr Kerr. By her own admission, Ms McKie had been at the house in the late afternoon of Saturday 11 January 1997, around 17:45 hours, in order to collect the log for photocopying and to return it to Mr Lees.[2] Mr Kerr's statements indicated that he had seen Ms McKie at the house (in the porch) that day. The log showed Mr Kerr as having left the house at 13:15 and therefore Mr Murphy inferred that this sighting must have been during the morning, at a time when Ms McKie had no legitimate reason to be there.[3]

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1 CO_0214
2 CO_0286
3 FI_0070 paras 12-15 Inquiry Witness Statement of Sheriff Murphy

12.8. Mr Kerr's statements were vague so Mr Murphy instructed inquiries.[4] He asked Mr Dennis to provide a copy of the log to someone from the procurator fiscal's office so that inquiry could be made of Mr Kerr as to when, precisely, he had seen Ms McKie at the house. The information that came back to Mr Murphy was that Mr Kerr said that he had seen Ms McKie at the house on the Saturday. Mr Murphy understood this to be before lunchtime because he thought that the statement was taken with reference to the log, which recorded Mr Kerr as having left at 13:15.[5]

12.9. Mr Shields gave evidence at the trial covering the whole of his time with Ms McKie during the investigation. He referred to the attendance of Ms McKie to collect and return the log on the Saturday, which he timed around 5pm and he said that when she collected the log she entered the porch but did not remain long at the house.[6]

12.10. Mr Kerr's evidence was not as expected. Though he did say that he had seen Ms McKie in the porch that day, his evidence was that he had returned to the house in the afternoon to continue removing door handles, a job that could not be completed in half a day and that it was some time in the afternoon that he saw Ms McKie.[7] This removed the basis for any inference that Mr Kerr could place Ms McKie at the house before lunchtime and Mr Murphy told the Inquiry:

> "Once this identification evidence was flawed I began to become concerned as I was now relying solely on the fingerprint evidence to place Ms McKie inside the house."[8]

12.11. The theory that Ms McKie had been in the house on the Saturday placed suspicion on Mr Lees, who was the officer responsible for keeping the log that afternoon. In addition to the log having no record of Mr Kerr being at the house in the afternoon, it had no record of Ms McKie being there at any time that day. His evidence was that Mr Kerr could not have been in the house in the afternoon if his presence was not recorded in the log. As for Ms McKie, Mr Lees confirmed that she had collected the log from him but he said he had not recorded this in the log because he understood that he was to record only those who crossed the threshold of the house and Ms McKie did not do so because she did not enter the porch.[9]

Scene of crime evidence

12.12. The proposition that Ms McKie had placed her mark on the door-frame on Saturday 11 January was, at least to some extent, understood to be supported by the fact that the mark Y7 was not found when the door-frame was dusted with aluminium powder on 9 January but was found when it was dusted with black powder on 14 January. Mr Kent's conclusion in his report was that it was likely that the fingerprint had been deposited after the application of the aluminium powder[10] but it would seem that Mr Murphy did not attach much significance to this evidence because he knew that the mere fact that the mark was not disclosed by aluminium powder was not conclusive proof that it was not on the door-frame at the time.[11]

4 FI_0070 para 13 Inquiry Witness Statement of Sheriff Murphy
5 Sheriff Murphy 25 June pages 21-22
6 CO_0214 section 16
7 CO_0214 section 31
8 FI_0070 para 16 Inquiry Witness Statement of Sheriff Murphy
9 CO_0214 section 33
10 CO_3876 para 9
11 FI_0070 para 15 Inquiry Witness Statement of Sheriff Murphy

12.13. Mr Kent did not give evidence until 6 May and Mr Carle recorded him as saying that he could not give an opinion on when the fingerprint may have been deposited.[12] At the time Mr Kent was puzzled that his evidence was uncontested[13] and that was probably because it had been overtaken by other evidence, notably by a scene of crime officer, Mr Stewart Wilson, and the focus of the trial had shifted to a battle between the fingerprint experts.

12.14. Mr Wilson gave evidence earlier in the trial.[14] He was the scene of crime officer who found mark Y7 when he dusted with black powder on 14 January. His evidence was that it was possible that Y7 was present before the dusting with aluminium powder and, as for the converse, if it had been placed after that dusting he would have expected to have found some evidence of disturbance. Asked if he could exclude the theory that the print had been placed after the aluminium powder he replied: "Yes, I can in my personal opinion."

SCRO fingerprint evidence: overview

12.15. The SCRO fingerprint examiners who gave evidence were Mr Stewart, Ms McBride and Mr MacPherson. Mr Stewart gave evidence on 4, 5 and 6 May, Ms McBride on 6 May and Mr MacPherson on 7 May.

12.16. The basic SCRO position can be summarised as follows:

(i) The four SCRO fingerprint examiners had compared Y7 to Ms McKie's left thumbprint and reached their conclusions independently.

(ii) Each concluded that the bottom half of Y7 was made by Ms McKie's left thumb. The SCRO examiners had found at least 16 points in sequence and agreement in that regard.

(iii) They concluded that the top half of the mark ought to be excluded from consideration. This meant that any apparent differences between the top half of the mark and Ms McKie's thumbprint could be set to one side.

(iv) Y7 was made by Ms McKie's left thumb.

12.17. The defence challenged the substance of SCRO's identification, and, in particular, advanced three broad reasons why it was wrong.

(i) Bar five points that were possibly within tolerance, the differences and the unreliability of the 16 points relied on by the SCRO fingerprint examiners meant that Ms McKie did not make Y7.

(ii) The assumption that the top half of the mark should be discounted was incorrect with the result that clear differences between the top half of the mark and Ms McKie's thumbprint should be taken into account.

(iii) The differences in the top half of the mark Y7 meant that Ms McKie did not make Y7.

SCRO witnesses were cross-examined on this basis.

12 CO_0214 section 74
13 FI_0052 para 29 Inquiry Witness Statement of Mr Kent
14 CO_0214 section 34

Mr Foley

12.18. Mr Foley had checked Y7 during the blind trial and had eliminated it to Ms McKie.[15] This was not made known to either the prosecution or the defence. Both prosecution and defence had precognosced Mr Foley as a witness included in the Crown List relative to the 1993 incident when Ms McKie's print was found on a production. In the course of the evidence of Mr Stewart on 5 May 1999 the defence successfully objected to any evidence being led about that incident[16] and, presumably as a consequence, Mr Foley was not called as a witness at the trial.

SCRO examiners' evidence at the trial

Numbering of characteristics in the charted enlargements

12.19. The evidence at the trial was given primarily by reference to the SCRO charted enlargements in Productions 152 and 189. The two productions featured a combined total of 17 ridge characteristics. Though the majority were common to both productions there were some variations in the numbering of those characteristics. In this Report points are generally referred to by the numbers assigned to them in the SCRO chart produced as part of the comparative exercise.[17] Those numbers correspond to the numbering in Production 152 and can be reconciled with the numbering originally in Production 189 by reference to table 1 in chapter 24. In this chapter, in order to be consistent with the trial transcripts, both the original number and the comparative exercise equivalent will be given. The comparative exercise equivalent is indicated by use of the term "SCRO point [number]".

Mr Stewart

12.20. Mr Stewart was the lead witness, and was the only one of the SCRO officers asked to speak to the full detail of the comparison.

12.21. Using the general (or non-case specific) illustrations in the booklet Production 181[18] Mr Stewart gave the jury an introduction to fingerprint identification and the methodology applied by examiners. He told the jury that fingerprint evidence had never been successfully challenged[19] and referred to the fact that he was authorised by the Secretary of State for Scotland to give evidence.[20] He explained to the jury that as an expert he was happy to identify with 10-12 points but that the convention in the UK was to work to the 16-point standard.[21] Though he mentioned that the UK was in the process of moving to the non-numeric standard, his evidence was that the 16-point standard was a very high standard, higher than that applied in some other countries,[22] and that the probability that two people would share 16 ridge characteristics was one in 10^{16} a number grossly in excess of the population of the earth.[23] That said, he advised the jury that fingerprint examiners in modern practice no longer cited probabilities because it was felt that fingerprint

15 See chapter 7 para 120ff
16 SG_0526 pages 114-150
17 FI_0167A
18 CO_0201
19 SG_0526 page 53
20 SG_0526 page 61
21 SG_0526 pages 69-70, 155
22 SG_0526 pages 69-70
23 SG_0526 pages 92-93

evidence had been in use for so long that it had been established in its own right as a means of identification.[24]

12.22. Having given the general introduction he then addressed mark Y7. He mentioned that he had personally checked the comparison three times and also said, without further elaboration, that it had been checked by the quality assurance officer and the deputy head of bureau.[25]

12.23. In considering his evidence it is necessary for clarity to look separately at (1) his justification for drawing his conclusion from the lower part of the mark and (2) his defence of the proposition that there were at least 16 points in sequence and agreement in the lower part of the mark.

Use of lower part of the mark

12.24. Mr Stewart explained that the identification was made under reference to the lower part of the mark. Three different factors were cited by him in his evidence-in-chief when seeking to explain the reasons for discounting the upper part of the mark:

(i) SCRO were not sure if the top was part of the same or another finger,[26] though he contradicted that by saying that his own opinion was that they were more likely to be one print.[27]

(ii) There was an area of distortion across the mark and the mark appeared as if either (1) the finger had been placed down and rolled away with pressure to the top or side or (2) there had been an impression there already and the thumb had been put down on top of it.[28] The second of those possibilities may be summarised as Y7 being the product of superimposition;[29] and, as for the first possibility, the added explanation was that pressure can cause distortion round the edges,[30] leading to the dissimilarities.[31]

(iii) The upper part of the mark was very high up to the top of the thumb and the ridge characteristics in that area could not be compared because that section of the thumb was not shown in any of the fingerprint forms available to SCRO.[32]

12.25. In cross-examination he adhered to the conclusion that the mark as a whole was probably one print[33] and also to the explanation that, though the area at the top was not in sequence and agreement with the rest, the explanation lay in the area corresponding to the top of the mark not being shown on the fingerprint form.[34]

12.26. Defence production 2[35] was put to him in cross-examination and his evidence relative to that production was clarified in re-examination.[36] He accepted that Mr

24 SG_0526 pages 92,169
25 SG_0526 page 86
26 SG_0526 pages 71, 95
27 SG_0526 pages 97-98
28 SG_0526 pages 71-72
29 See SG_0526 page 99
30 SG_0526 page 73
31 SG_0526 page 97
32 SG_0526 pages 96-100
33 SG_0527 page 233
34 SG_0527 pages 236, 245
35 DB_0172h
36 SG_0527 pages 298-305

Wertheim's green circles pointed to probably three bifurcations and a ridge ending in the upper section of the mark and in discussing his reasons for excluding the top section of the mark he gave two reasons. Firstly he said that there had been movement with the top part jumping, resulting in the detail in that part being a couple of ridges out. Secondly, he repeated that the top part of the mark was not reproduced in the print forms available to SCRO.

16 points in lower part

12.27. His evidence-in-chief on the finding of 16 points in sequence and agreement was given by reference to the case specific charted enlargements, firstly in Production 152,[37] repeating the exercise under reference to Production 189.[38]

12.28. The account which he gave of the nature of the 16 points in Productions 152[39] and 189[40] coincided with the description of those points in Table 1 of the SCRO comparative exercise contribution[41] but it is fair to say that in his evidence-in-chief he did little more than declare whether the ridge characteristic in question was a bifurcation or a ridge ending. There was little in the way of explanation as to the reasons for inferring how any incomplete detail should properly be interpreted. This was one of the main themes pursued in cross-examination.

12.29. Cross-examination opened by questioning the rationale for the 16-point standard, attributable as it was to the misunderstanding of the Bertillon charts.[42] The line being pursued by the defence was that those, like SCRO, who applied the 16-point standard merely counted points, whereas those who applied the non-numeric approach gave closer consideration to the mark as a whole and, in particular, to the quality of the ridge characteristics in it.

12.30. Reflecting Mr Wertheim's opinion, Mr Findlay proceeded on the basis that five points could be within tolerance.[43] For the rest, he questioned whether the detail in the mark was of sufficient clarity to admit of any reliable interpretation. He repeatedly asked Mr Stewart to demonstrate characteristics to the jury initially by reference to Production 152[44] and latterly by reference to Production 189 and two sub-plots emerged. The first can simply be described as discussion of "blobs" and the second was the issue of "teasing out"[45] the points.

12.31. As regards "blobs", when Mr Stewart was demonstrating (under reference to Production 152) what he saw as the two bifurcations SCRO 10 and 11 which met to form a lake, Lord Johnston interjected that even with the benefit of a magnifying glass "it is just a fudge."[46] Later Mr Findlay was to use the word "blob" when directing Mr Stewart to any part of the mark that Mr Findlay was suggesting lacked clarity. He first applied this term when asking Mr Stewart to demonstrate

37 ST_0006h
38 DB_0012h
39 SG_0526 page 75ff
40 SG_0526 page 105ff
41 FI_0106 SCRO Phase 1 Comparative Exercise
42 SG_0526 page 161ff
43 SG_0526 page 193
44 e.g. SG_0526 page 171
45 See chapter 28 paras 34-35
46 SG_0526 page 175

his interpretation of point 1 in Production 152[47] (i.e. SCRO point 1) as a bifurcation and again Lord Johnston remarked that even with the benefit of a magnifying glass the word "blob" seemed to be appropriate.[48] Later Lord Johnston asked Mr Stewart whether he agreed that to the untrained eye points 15 and 16 in Production 152 (i.e. SCRO points 15 and 16) looked like blobs, to which Mr Stewart replied:

> "It is a good term that Mr Findlay used earlier. Yes, sir, I would say to someone who has no training and no experience of fingerprints probably a whole lot of that just looks like a black mess you would think, my Lord."[49]

12.32. Mr Findlay also scrutinised Production 189[50] and asked whether he would agree that what he demonstrated (as a bifurcation) at point 6 in that charting (i.e. SCRO point 7)[51] could not really be seen, Mr Stewart replied: "I agree again, sir, you would probably call that a blob" and also accepted that he could only claim it to be reliable by appealing to his own experience.[52]

12.33. As regards "teasing out" points, Mr Findlay used that term specifically later in his examination when he explained what the defence experts would say[53] but earlier he had put the same point in lay terms: within any kind of tolerance Mr Stewart was "squeezing too much in to the pot",[54] or going looking for something and convincing himself that it existed when in reality it did not.[55] When Production 152 was being viewed Mr Findlay questioned SCRO points 7, 10-13 and 15-16 on this basis,[56] and when he turned to Production 189 the list was expanded to include the point marked 10 in that chart (SCRO 17 in the comparative exercise).[57]

12.34. In his evidence-in-chief Mr Stewart had explained that the charted enlargements in Productions 152 and 189 were produced for illustrative purposes only to show the jury how the examiners reached their conclusion and he told the jury that they were not the materials used when the print was first identified.[58] In re-examination Mr Murphy sought to diminish the impact of the characterisation of significant parts of the charted enlargements as "blobs" by eliciting from Mr Stewart the explanation that the detail in an image can become distorted as it is enlarged, which is why fingerprint examiners prefer to work with life-size images and not enlargements.[59] It is evident from one observation by Mr Murphy that when the life-size image of Y7[60] itself was displayed on a projector in court and enlarged it was not particularly clear.[61] There may have been the added complication that the jury were given

47 ST_0006h
48 SG_0526 page 196
49 SG_0526 page 205
50 DB_0012h
51 See table 1 in chapter 24
52 SG_0526 page 209
53 SG_0526 pages 213-214
54 SG_0526 page 200
55 SG_0526 page 203
56 SG_0526 pages 199-205
57 SG_0526 page 212ff
58 SG_0526 page 67
59 SG_0527 page 269
60 ST_0006h pdf page 6
61 SG_0526 page 70

reproduction copies of the charted enlargements for their own use which were inferior.[62]

Ms McBride

12.35. In evidence-in-chief Ms McBride was taken through the joint reports and, with one exception, she was not asked to demonstrate the 16 points in sequence and agreement in each of the charted enlargements. The exception is that she was asked about point 14 in Production 152 (SCRO point 14) and she said that that could be either a bifurcation or a ridge ending but did not like to say which it was by reference to an enlargement because that was not as clear as looking at the original image under glass.[63]

12.36. The justification for discounting the top of the mark was explored with her.[64] She said that she had checked the whole print but did not care for the top part of the mark. It was of no value to her because she could not interpret the ridges properly as it was not clear but she could not give a specific reason for that: it could be distortion, movement or pressure and it may not even have been made by the same author.

12.37. Four points were raised with her in cross-examination.

(i) The depth of her qualification as an 'expert' witness was indirectly questioned by pointing out that she did not attend conferences, deliver papers or write articles.[65]

(ii) She was asked if she subscribed to the view that her judgment was infallible, and she said that it was not her judgment but rather the system that was infallible: "One person can make a mistake but four people and the quality assurance officer – it is not possible."[66]

(iii) Her justification for discounting the top part of the mark was addressed. Asked about SCRO point 1 in Production 152[67] being a blob, she observed that the top of the mark was a blob,[68] and that was why she could not give an opinion on it. However, she did not give a specific reason for discounting the top part. She said that it would be dangerous to venture an opinion on the question whether it was one print or one on top of another because she did not know how the mark was made. She did not have an opinion and discounted the top part because "it is either moved or something else is on top or I say it has been dragged with pressure."[69] In the end it came down to the conclusion that her experience told her that that part of the mark could not be properly interpreted.[70]

(iv) Defence production 2,[71] Mr Wertheim's charting, was put to her. Ms McBride told the court that she had not seen Mr Wertheim's production before and had not studied it. She was told that it was a photograph of Y7 but said that

62 SG_0526 page 85
63 SG_0528 page 20
64 SG_0528 pages 22-26
65 SG_0528 pages 26-27
66 SG_0528 page 30
67 ST_0006h
68 SG_0528 page 34
69 SG_0528 pages 32-33
70 SG_0528 page 34
71 DB_0172h

> she would not comment on it before studying it. She did not want to express an opinion on it without the correct lighting, glasses and a photograph of the correct size.[72] Cross-examination ended abruptly at that point.

12.38. After re-examination, Lord Johnston asked one question and Ms McBride agreed that her rejection of the top part of the mark was based on her observation and experience rather than any (specific) reason.[73]

Mr MacPherson

12.39. Like Ms McBride, Mr MacPherson's evidence was abbreviated and he was not taken through the detail of all 16 points in sequence and agreement in the two principal productions. He was, though, asked to demonstrate the points 3-5 in Production 189[74] (SCRO points 3, 4 and 6 in the comparative exercise). He demonstrated those points to the jury by tracing them on screen with a pointer under reference to an image in Production 189 and also an image in Mr Wertheim's defence production 2.[75]

12.40. In evidence-in-chief he was also asked to explain his reasons for discounting the top section of the mark and, as with Ms McBride, this came down ultimately to a judgment based on his own experience:[76]

> "Because in my opinion the top of the print is either subject to superimposition, one upon itself or upon another print or because of severe twisting and distortion it is not an area which is conducive to a comparison for comparison purposes."[77]

Asked to explain in layman's terms any features indicative of distortion or superimposition he simply offered: "Well, basically the ridge characteristics do not look genuine."

12.41. In cross-examination Mr Findlay again indirectly questioned the depth of expertise as an 'expert' witness by drawing out that Mr MacPherson had attended few seminars outside the bureau and had not delivered papers or written articles.[78] The thrust of the brief cross-examination was to test whether Mr MacPherson would be more specific in his reasons for discounting the top part of the mark but Mr MacPherson was no more specific than he had been in his evidence-in-chief. He accepted that he could see one bifurcation in the upper part of the mark but said that there was uncertainty about a second possible bifurcation, which was why he could not use the top. That prompted this question and answer:

> "Does it come to this: we could do this all day, Mr MacPherson, and your response simply is that it is uncertain because 'I say it is uncertain'? – Well from my experience, yes, it is not an area conducive for comparison purposes."[79]

72 SG_0528 pages 38-41
73 SG_0528 page 45
74 DB_0012h
75 SG_0529 pages 34-38
76 SG_0529 pages 29-31
77 SG_0529 page 29
78 SG_0529 pages 59-60
79 SG_0529 page 59

Ms McKie's evidence

12.42. Ms McKie gave evidence in her own defence on 11 May and was cross-examined. The account that she gave of her movements was consistent with her earliest police statement,[80] the statement that she gave to the Mackay team in 2000[81] and her statement to the Inquiry.[82] She denied having been in the house beyond the porch and accordingly denied that the mark Y7 could have been made by her. In particular, she testified that the only time she had been at the house in the course of Saturday 11 January was when she entered the porch to collect the log at about 5.45pm and returned it at about 6.15pm.[83]

12.43. Evidence that she gave relative to ignorance of Mr Swann's views on Y7 is discussed separately in chapter 15.

The fingerprint evidence for the defence

12.44. The defence called two fingerprint examiners to give evidence, Mr Wertheim and Mr Grieve. Mr Wertheim gave evidence on 11 and 12 May and Mr Grieve gave evidence on 13 May. Mr Findlay sought to set up their 'expert' status by eliciting evidence from them that they trained others, attended conferences and published papers.[84] Only Mr Wertheim gave a detailed critique of the mark, the evidence of Mr Grieve being in more general terms.

Mr Wertheim's evidence

12.45. Mr Wertheim drew a distinction between what he called the "two philosophies" of the threshold approach in the 16-point standard and the evaluative approach in what, at the Inquiry, was referred to as the non-numeric approach.[85] He said that under the threshold approach if 16 points were found there was automatically an identification whereas under the evaluative approach there had to be an evaluation of everything that was present. He argued that it was invalid to exclude part of the mark and to focus on only a narrow band; everything must match.[86] He also explained that because of the elasticity of the skin ridge detail can vary and it was a necessary part of the analysis phase of a comparison to set a degree of tolerance for minor deviations which could be due to distorting factors.[87]

12.46. He proceeded through a detailed critique of each of the total of 17 points of similarity in Productions 152[88] and 189[89] and made reference to a total of eight points of difference, including what later came to be known as the 'Rosetta'.[90]

80 CO_0286
81 CO_2219
82 FI_0071 Inquiry Witness Statement of Ms McKie
83 SG_0531 pages 26-30
84 Mr Wertheim in SG_0531 pages 128-129 and Mr Grieve at SG_0532 page 3ff
85 SG_0531 page 142
86 SG_0531 page 141
87 SG_0531 pages 143-145
88 SG_0530 page 197ff
89 SG_0531 page 162ff
90 See chapter 25

12.47. In giving his evidence he used a combination of materials. His principal source materials were in defence production 2,[91] the exhibit that he had prepared himself with his own photograph of the mark and a print of Ms McKie's left thumb that he had taken. The exhibit contained layers of acetates to illustrate his various arguments and one of them contained his transposition of the 16 SCRO points as shown in Production 189. When discussing the list of points in Production 189 he was in fact viewing them relative to the images in his own exhibit, but when discussing Production 152[92] he looked at the SCRO charting itself.

12.48. Two incidental observations can be made relative to defence production 2.

(i) Mr Stewart had discounted the upper part of the mark in part because he was of the view that that part of the mark came from the top of the thumb, which was not reproduced in the prints available to SCRO. Mr Wertheim had himself taken in excess of 15 or 16 prints from Ms McKie in order to get a print that included the tip of the thumb in order to compare like with like and it was one of those prints that was included in his production.[93]

(ii) Secondly Mr Stewart was concerned that defence production 2 did not reflect a like for like comparison because it was his opinion that the mark and print were displayed at different angles. Mr Wertheim's evidence was that the two acetates on which he had marked his points of difference also included markings to indicate the location of a target group of five points taken from SCRO Production 189 in order to show that the mark and print were properly orientated.[94]

12.49. While Mr Wertheim did accept that some people can see things that other people cannot and that there was room for "God given talent", with some detail calling for interpretation by an expert,[95] the approach that he adopted in evidence was to seek to demonstrate his viewpoint to the jury using the visual materials. As Mr Findlay put it, Mr Wertheim's thesis was that the jury should not just listen to what the expert's opinion was but should use the evidence of their own eyes and look at the material for themselves:[96] "if you cannot see it, you cannot use it."[97]

12.50. One example of his recurring use of visual demonstrations was that when he was asked to comment on whether Y7 was made by a single touch the transcript records that he made drawings to show the types of ridge structure that he would expect if there was a double touch and from that he proceeded to say that he found that the ridges in Y7 lined up and therefore he found no support for the elimination of the top of the mark from the comparison.[98]

12.51. In looking at the SCRO points of similarity, Mr Wertheim drew a distinction between:

1. characteristics that he was prepared to accept matched within tolerance;

91 DB_0172h
92 ST_0006h
93 SG_0531 pages 147-150
94 SG_0531 page 178 and SG_0530 page 218
95 SG_0530 page 207
96 SG_0530 page 348
97 SG_0530 page 210
98 SG_0530 pages 210-211

2. points that could be observed but which did not match within tolerance; and

3. points which he said did not exist.[99]

12.52. The first category comprised a "target group"[100] of five points. Using the numbering in Production 189 these were points 3, 4, 5, 8 and 14.[101] The corresponding numbers in the comparative exercise are SCRO points 3, 4, 6, 9 and 5, respectively. Even in relation to these points his evidence was sceptical, indicative of the view that he was working to what he regarded as the outer limits of tolerance:

(i) 3, he said, was "well within tolerance".[102]

(ii) In relation to 4 he said that the ridges had to join in opposite directions in mark and print: "I do not like that but I will accept it as being within tolerance."[103]

(iii) Point 5 in Production 189 (SCRO 6) was a "splitting ridge" (or bifurcation) in the print but appeared more like a ridge ending in the mark but he was prepared to accept that they matched within tolerance.[104]

(iv) Point 8 in Production 189 (SCRO 9), was said to be "within tolerance and standing alone and by itself".[105] That conclusion had two implicit qualifications. Firstly, when he looked at the corresponding detail in Production 152 (point 9 in that exhibit) he observed that there was a difference in the shape of the bifurcations in mark and print (there was a bump in one and not in the other) and his view was that this point was "on perhaps the outer edge of tolerance".[106] Secondly, that concession was made relative to SCRO 9 in isolation, because he said that there was a discrepancy in ridge count relative to SCRO 8 with an intervening ridge being present in the mark but not in the print.[107]

(v) Point 14 (SCRO 5) he said was a bifurcation in the print and appeared to be a ridge ending in the mark but could be accepted within tolerance.[108]

12.53. The second category included point 6 in Production 189 (SCRO 7): there was something there in the mark but in the background (because the piece of wood was an uneven surface) he saw other spots and bumps and he would not use it.[109] The second point discussed in this manner was point 7 in Production 189 (SCRO 8): in mark and print there were points on the innermost recurving ridge at the core but the appearance of the surrounding detail was different and therefore he could not accept that point as being within tolerance.[110]

99 SG_0531 pages 163-164 and SG_0530 page 204
100 SG_0531 page 177
101 SG_0531 page 177
102 SG_0531 page 168
103 SG_0531 page 169
104 SG_0531 page 169
105 SG_0531 page 171
106 SG_0530 page 200
107 SG_0531 page 171
108 SG_0531 pages 174-175
109 SG_0531 pages 169-170
110 SG_0531 page 170

12.54. The examples given of points that did not exist (the third category) were points 9 and 10 in Production 189 (SCRO 10 and 17, respectively)[111] and points 12 and 13[112] (numbered the same in both Production 189 and the comparative exercise). When Mr Wertheim ran through the points again under reference to Production 152 he accepted the proposition put by Mr Findlay that the jury could ask themselves whether they could see SCRO points 10 and 11;[113] but when addressing SCRO 12 and 13 (the incipient ridge) on Production 152 he observed that the image in the SCRO production was an enlargement produced digitally and could be affected by "pixelling".[114]

12.55. Using the acetates in defence production 2 Mr Wertheim demonstrated to the jury his contention that there were four points in the mark that were not present in the print and a further four points in the print that were not in the mark. The benefit of the acetates was that by lifting them up the jury could see the unmarked image and by placing them down they could see the detail that Mr Wertheim was highlighting and in that way it was suggested that the jury could reach their own view on the matter.[115]

12.56. Of the four points in the mark that were not in the print, the lowest green circle corresponded to what became known as the Rosetta and it was Mr Wertheim's evidence that if a ridge count were to be done relative to point 14 in Production 189 (i.e. SCRO 5), it could be seen that there was no bifurcation in the same position in the print and his conclusion was that even that difference alone showed that it was "clearly not" Ms McKie's print.[116]

12.57. Cross-examination did not engage with the detail of Mr Wertheim's views on the points of similarity or the eight points of difference relied upon by him.

(i) Two specific lines were pursued in relation to image quality. The first was that the image of Y7 in defence production 2, which was a photograph taken by Mr Wertheim, showed the mark in a damaged state, with a striation across the centre of it, and Mr Murphy suggested that that damage may have affected some of the points that SCRO had seen when studying images of the undamaged mark. Mr Wertheim replied that the striation had not significantly altered the image because he could still follow the ridges.[117] The second related to the quality of the enlargements in Productions 152, 180 and 189. Mr Wertheim accepted that he had had difficulty with those productions because of the magnification process used and that the original photographs in the productions appeared clearer than the enlargements but he did not subscribe to the view that comparison should only be done using one-to-one size images.[118]

(ii) That apart, the lines of cross-examination were more generalised: fingerprint comparison (including the exclusion of part of a mark as adversely affected by distortion) was a matter of opinion on which the views of experts could

111 SG_0531 pages 164, 171-172
112 SG_0531 pages 173-174
113 SG_0530 page 201
114 SG_0530 pages 201-202
115 SG_0531 pages 193-194
116 SG_0531 pages 179-180
117 SG_0530 pages 297-302
118 SG_0530 pages 304-307

differ; though a jury could see for themselves points which were as clear as a pikestaff, on other matters they might require guidance from an expert; expertise was not just a matter of God given talent but included training and experience and the suggestion was made that practitioners, like SCRO, who worked exclusively on fingerprint comparison might have more experience than persons, like Mr Wertheim, who had more mixed careers. It was suggested that SCRO were working to higher standards by subscribing to the 16-point standard and having a verification process that involved a total of four examiners, and Mr Wertheim accepted that there had been cases of misidentification in the USA and none that he was aware of in any country that applied the 16-point standard.

Mr Grieve's evidence

12.58. This was brief. His view was that Y7 came from a different person. He speculated that the mark could been made by a right hand; there was conflicting evidence on the point. The mark formed a single continuous latent and he objected to the charting in Production 152 because it did not show all of the detail. As for the images of mark and print in defence production 2, he said that it was a comparison of like for like and if there were two bifurcations in one and not in the other then they had to come from different people.[119]

Speeches

12.59. The speeches to the jury by Mr Murphy and Mr Findlay were summarised in Mr Carle's note.[120] As presented to the jury by Mr Murphy, the case for the prosecution depended solely on the fingerprint evidence that mark Y7 was made by Ms McKie, resulting in the inference that she must have gone beyond the porch in order to touch the doorway. The prosecution accepted that there was no other evidence placing her there and that, if the prosecution case was correct, not only had Ms McKie lied but somebody else must also have lied by denying either letting her in or being absent from post and giving her an opportunity to enter the house.[121]

Lord Johnston's charge to the jury

12.60. Lord Johnston began his charge to the jury by making it clear that as he understood it nobody was suggesting, quite correctly in his view, that any of the experts they had heard was deliberately trying to deceive them or even to deceive themselves. The question for the jury was what evidence they found to be reliable.[122]

12.61. His directions to the jury suggested that they might consider the case in stages.

12.62. Firstly, he said that the jury could decide the case without even needing to consider the fingerprint evidence. If they believed Ms McKie's evidence, or it gave rise to reasonable doubt, they could conclude that she was innocent and acquit her.

119 SG_0532 pages 15-26
120 CO_0214 sections 91 and 92
121 CO_0214 para 91.3
122 CO_1465 page 6

12.63. If the jury could not decide the case on that basis, the issue was whether the prosecution had proved her guilt; and in order to do so the prosecution had to overcome each of a number of hurdles beyond reasonable doubt.

12.64. The first hurdle related to the scene of crime evidence. The jury had to consider how and when her print could have got on the bathroom door-frame. The prosecution case was that it was put there some time on the Saturday. He reminded the jury that the scene of crime evidence was that the door-frame was dusted with aluminium powder on the preceding Thursday and that when, on the following Tuesday, Mr Wilson applied the black powder there was no sign that in the intervening period the aluminium powder had been disturbed. The judge said: "One [obvious] conclusion which is open to you is that the print was there when the aluminium powder was put on." He pointed out that that was consistent with Mr Wilson's evidence and that there was no evidence to the contrary and, if that evidence was accepted, the Crown case failed.

12.65. The second hurdle was why Ms McKie should for two years, against pressure and in an isolated and lonely position, deny any involvement with the fingerprint. Lord Johnston asked why should she want to go into the house at all - was it because she was curious and to help with her analysis of the case. This had to be considered bearing in mind that the consistent view of all of the witnesses was that she did not enter the house.

12.66. Beginning from the proposition that the case for the Crown was that the jury could infer that she entered the house from the fingerprint evidence, he then turned to the assessment of that evidence "if you get that far."

12.67. Lord Johnston offered two considerations to be taken into account in addressing the conflicting expert evidence.

12.68. The first was that the jury could take into account the evidence of their own eyes:

> "... in assessing the fingerprint evidence, you do not, as it were, count heads, you must look at the evidence on its qualitative basis, albeit there are three led by the Crown and only two by the Defence. But what you have to do... as Mr Findlay properly pointed out to you, is to assess the whole matter against what you were told, but also with your own eyes. You have the photographs, you have the prints, make your own comparisons; you are quite entitled to do so. You can accept expert evidence when they say a blob in fact means something else, because certainly to my mind a blob is a blob. But if somebody says a blob contained something, you can accept that if you believe them. But, on the other hand, where the two comparisons with your own eyes reveal mismatches, then you have to start, I suggest, being seriously concerned about whether this really is Miss McKie's print and certainly seriously concerned to the point of beyond reasonable doubt."[123]

12.69. The second specific matter that he highlighted was the contrasting performance of the experts when it came to justifying their views in relation to the top of the mark. Lord Johnston observed that if the American evidence was acceptable to the jury and the top third of the mark was genuine and available as a credible

123 CO_1465 pages 16-17

piece of evidence then it seemed to him that the Crown case completely collapsed because of the obvious disparities between the tops of the mark and the print that the jury could see with their own eyes. He said that the jury was bound to take into account that the Crown witnesses, particularly Mr Stewart and Ms McBride, offered no reason for dismissing the top part of the mark, other than to say "it is my opinion" and "it is my judgment." Mr Wertheim, on the other hand, drew what he would expect to find as signs of movement and concluded that he found none and therefore that there was a mismatch. Lord Johnston commented: "And he bases that [i.e. the conclusion of mismatch] on reasons, not just judgment."[124]

The verdict

12.70. After the judge had charged the jury they retired to consider their verdict and after one hour and twenty five minutes returned a unanimous verdict of not guilty.

12.71. The trial concluded with Lord Johnston extending to Ms McKie his respect for "the obvious courage and dignity which you have shown throughout this nightmare, as you have described it. I very much hope you can put it behind you, I wish you all the best."

124 CO_1465 pages 18-19 at 19

CHAPTER 13

EVENTS FOLLOWING THE DECISION IN *HMA v McKIE*

Introduction

13.1. This chapter sets out the sequence of events following the acquittal on Friday 14 May 1999 of Ms McKie. The reviews in which the Crown and SCRO were involved, the instruction of additional experts to consider the fingerprint evidence, and decisions concerning six of the SCRO officers are outlined.

HMA v Asbury – appeal

13.2. Mr Asbury had lodged an appeal on 5 August 1997. The original Grounds of Appeal[1] did not dispute the fingerprint identifications. In April 1998 Mr Asbury instructed new solicitors, George More & Co, and on 10 September 1998 they intimated that they had appointed a fingerprint expert to review the fingerprint evidence.[2] On 4 November 1998 the appeal was continued to enable further investigations to be carried out[3] but it was not until 2 July 1999 that George More & Co informed the procurator fiscal that they were applying for legal aid sanction to instruct an (American) expert.[4] By 14 September 1999 sanction had been granted and George More & Co sought the image of QI2 and Miss Ross's prints.[5] On 30 September 1999 copies of the productions relative to QI2 were sent to them.[6]

13.3. There was correspondence in February 2000 stating that Mr Wertheim had been instructed on behalf of Mr Asbury[7] and in June 2002 the defence solicitors intimated amended Grounds of Appeal challenging the identification of Miss Ross's print on QI2.[8]

13.4. Mr Asbury was liberated on bail pending the determination of his appeal on 22 August 2000,[9] the Crown did not oppose his appeal and on 14 August 2002 the Court of Criminal Appeal quashed his conviction.

13.5. The basis on which Mr Asbury's conviction was quashed is not within the Inquiry's terms of reference but some of the inquiries mentioned in this chapter did relate, at least in part, to that appeal.

1999: Initial reactions to *HMA v McKie*

SCRO and Crown Office

13.6. Mr Crowe, then Deputy Crown Agent, first became aware of the trial the day after it ended and he and Mr Murphy spoke about it. They were concerned about the effect it could have on fingerprint evidence.[10]

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1 CO_3402
2 CO_3761
3 CO_3756
4 CO_3753
5 CO_3748
6 CO_3744
7 CO_3743
8 CO_3536 and CO_3537
9 CO_0010
10 FI_0048 para 3 Inquiry Witness Statement of Sheriff Crowe

13.7. Detective Chief Superintendent Henry Bell, the Director of SCRO from November 1998, did not know about the trial while it was ongoing but afterwards became aware of the growing media attention focussed on the fingerprint evidence.[11] There was speculation in the media about the mark and Mr McKie was making public statements about it being wrong and the quality of the fingerprint experts from America. Mr Bell thought it appropriate to have the mark re-examined and to meet with the Crown to clarify if there were any areas he should investigate.[12]

13.8. He asked Mr Mackenzie and Mr Dunbar to re-examine the mark and they confirmed that Y7 was Ms McKie's fingerprint.[13] Mr Mackenzie explained that they were unable to examine the defence material as it had been removed after the trial, but they discussed information from the upper part of mark Y7 that the American experts had pointed to and about which the SCRO witnesses had not given a clear explanation.[14]

13.9. Mr Bell convened a meeting[15] which was held on 20 May and attended by Mr Crowe and Mr Murphy from Crown Office and by Mr Griffiths, Mr Mackenzie, Mr MacPherson, Mr Stewart, Ms McBride and himself from SCRO. The purpose of the meeting was to clarify what had gone wrong and learn lessons to avoid any repetition.[16]

13.10. Witnesses accepted that the minutes[17] were generally a fair reflection of the meeting although there were differences of recollection on points of detail.[18] The minutes reflect a wide-ranging discussion including the problems posed by the late arrival of the defence fingerprint evidence, the significance of the SCRO examiners' inability to explain their treatment of the upper part of the mark and the relatively poor quality of the SCRO charted enlargements compared with Mr Wertheim's production. That said, the minutes record Mr Murphy as being of the opinion that "it was unlikely that this case would cause serious damage to fingerprint evidence and that the case was a one-off, containing circumstances which were unlikely to be repeated." Complicating factors were present, including the lack of security at the house (i.e. the defects in log-keeping) and the inability of scene of crime officers to support the inference that the mark had been placed on the door-frame after the application of the aluminium powder. Reading the minutes it is evident that the failure of the prosecution was not attributed to the SCRO fingerprint evidence, or at least not solely attributed to that evidence:

> "Miss McBride asked 'Did fingerprints lose the case?' Mr Murphy's reply was, 'No, there were other difficulties with the case' and added that the Defence made a good case in suggesting doubt."

11 Mr Bell 3 July page 31
12 Mr Bell 3 July page 33
13 Mr Bell 3 July pages 31-33
14 FI_0046 para 133 Inquiry Witness Statement of Mr Mackenzie
15 Mr Bell 3 July page 33 and FI_0043 para 6 Inquiry Witness Statement of Mr Bell
16 FI_0048 para 3 Inquiry Witness Statement of Sheriff Crowe, FI_0043 para 6 Inquiry Witness Statement of Mr Bell and CO_0034
17 CO_0034
18 FI_0043 para 6 Inquiry Witness Statement of Mr Bell, FI_0048 para 5 Inquiry Witness Statement of Sheriff Crowe and FI_0070 para 32 Inquiry Witness Statement of Sheriff Murphy (but see para 33)

13.11. The assessment that the outcome of the prosecution did not depend solely on the quality of the fingerprint evidence is consistent with the structure of Lord Johnston's charge to the jury.[19]

13.12. Statements provided to the Inquiry confirm that that reading of the minutes reflects the understanding of those involved at the time. Mr Bell's assessment was that there were areas that the bureau would have to improve on but that the Crown was satisfied with the evidence given by the examiners and its conclusions.[20] Mr MacPherson's recollection was that Mr Murphy said that the SCRO witnesses' integrity and presentation skills were fine and that fingerprints did not lose the case.[21] Mr Mackenzie had the impression that it was witnesses other than SCRO that had given rise to problems.[22] Mr Crowe thought the SCRO examiners seemed competent and gave clear explanations. He left the meeting reassured by their explanations.[23] The SCRO examiners had accepted that their productions had not been of the best quality.[24] He was left with the impression that there might have been a bit of an ambush in court as a consequence of the lack of opportunity to prepare a response to the defence evidence and his view was that fingerprint evidence could be challenged in future but the SCRO examiners could respond to it.[25]

13.13. On 2 June Mr Bell wrote to all the chief constables in Scotland and copied that letter to HM Inspector of Constabulary for Scotland and the Scottish Executive Justice Department.[26] Reflecting the meeting on 20 May, Mr Bell gave reassurance that, while SCRO would re-evaluate its methods of evidence presentation, the Crown was satisfied that "the case was unique in certain areas and [was] unlikely to cause any serious damage to fingerprint evidence".

13.14. The following day, Mr Murphy submitted his note on the case to Crown Office and the Inquiry was provided with a copy of part of that note,[27] which concludes:

> "I consider that there are three main lessons to be learned from the McKie case.
>
> (1) In any future case the SCRO experts must be able to justify all aspects of their position to the jury in language which the lay person can understand. To this end it is essential that there be a full and detailed pretrial consultation between the A-D and SCRO witnesses - all of them - in any case where fingerprint evidence is crucial to the Crown case, a fortiori where a challenge is expected.
>
> (2) To this end, in any case where fingerprint evidence is essential, and especially where a challenge is perceived, better quality reproductive

19 See chapter 12
20 Mr Bell 3 July pages 33-34
21 FI_0055 para 176 Inquiry Witness Statement of Mr MacPherson
22 FI_0046 para 132 Inquiry Witness Statement of Mr Mackenzie
23 FI_0048 para 4 Inquiry Witness Statement of Sheriff Crowe
24 Mr Crowe 2 July page 150
25 Mr Crowe 2 July page 151
26 CO_1022, Mr Bell 3 July pages 37-44 and FI_0043 paras 7-8 Inquiry Witness Statement of Mr Bell
27 CO_4416

materials must be used so as to permit the SCRO experts to demonstrate clearly to the jury what they are talking about.

(3) In cases where the expert fingerprint evidence is being challenged, the Crown must not commence until the experts have had a full and proper opportunity to consider any defence materials in detail; and if necessary an adjournment should be sought to allow this to happen before the Crown leads the evidence of its experts. This point was made with some force by the SCRO at the post-trial meeting with them. They considered in retrospect that they required more time in which to seek to analyse the methodology of the 'rival' experts. Normally this ought to be done pretrial, but in practice defence productions commonly arrive at the last minute.

What this means overall is that A-Ds and fingerprint analysis witnesses must have regard to the general principles set out in *Hamilton."*[28]

13.15. The minutes of the meeting on 20 May, the letter to chief constables and Mr Murphy's note all proceed on the basis that any problem with the fingerprint evidence in *HMA v McKie* lay in weaknesses in presentation, rather than in the formulation of an erroneous conclusion. That was the assessment of SCRO and Crown Office at that time.

Mr McKie

13.16. Mr McKie wrote to the then Lord Advocate, Lord Hardie, on 9 June, reflecting on the prosecution and trial and suggesting that Crown Office had failed to ascertain whether "the checks and controls on the output and evidence of the SCRO fingerprint 'experts' were operating and being applied effectively and efficiently". He asked whether the SCRO witnesses at the trial were still acting as Crown experts, whether their previous work had been reviewed by outside experts and what steps the Crown was taking to avoid any potential miscarriages of justice in relation to fingerprint evidence.[29]

13.17. In reply, by letter dated 12 July 1999, a member of the Lord Advocate's Secretariat said that various issues raised by the case had been the subject of investigation by the Lord Advocate, including the conflict in expert evidence. The Lord Advocate did not propose to prevent the citation as prosecution witnesses in appropriate cases of the officers from SCRO who gave evidence for the Crown in the case, nor did he propose to instruct review of the findings of those officers in relation to other cases. [30]

Examinations of the mark and print

SCRO

13.18. The return of the Crown productions from the trial in early August[31] gave SCRO an opportunity to revisit the case and Mr Bell asked Mr Mackenzie to do this. He studied an image of Y7 and the 1997 impressions of Ms McKie's prints and

28 *Hamilton v HMA* 1934 JC 1
29 DB_0576
30 DB_0582
31 CO_3515 - dated 5 August

reached the same conclusion, and began to prepare an extensive portfolio of material.[32]

Materials available to those outside SCRO

13.19. From about this time there was growing public debate about Y7. It is important to note that this was based on a variety of source materials. Conflicts of opinion about the provenance of the particular images being examined have bedevilled the debate about Y7 and underlay the decision of the Inquiry to base its examination of the opinion evidence on the standard set of comparative exercise materials for sake of consistency. Comments on the views expressed by other examiners prior to this Inquiry have to be viewed in that light.

13.20. Since the trials in *HMA v Asbury* and *HMA v McKie*, save as necessary for the official inquiries referred to in this chapter and for the purposes of this Inquiry, the original SCRO material has not been available to the public. It is understood that material on the internet includes copies of the SCRO production books and illustrative chartings. At the time of the Inquiry Mr Mackenzie remained puzzled as to how Crown productions could appear on a website.[33] Be that as it may, comment referable to internet copies attracts the obvious criticism that it is not based on the best evidence, which is original images of the mark and actual fingerprint forms.

13.21. Various images taken by Mr Wertheim, both photographs of Y7 and thumb prints of Ms McKie, have entered the public domain in one form or another. Some examiners such as Mr Leadbetter may have received original photographic prints directly from Mr Wertheim[34] but copies are more widely available. Mr Mackenzie mentioned a CD circulated by Kasey Wertheim through Mr German to fingerprint bureaux[35] and also the publication on the internet of nine impressions taken by Mr Wertheim.[36] For his part, Mr Wertheim informed the Inquiry that the image of Y7 put on the Ed German website "onin" in 1999 or 2000 was scanned by Mr German directly from the negative of Mr Wertheim's photo that he took of Y7 on the door-frame and the inked impression was scanned directly from an inked impression of Ms McKie's print that Mr Wertheim took in March 1999.[37] Again, comment made by reference to copies attracts the obvious criticism that it is not based on the best evidence and even insofar as some examiners may have viewed originals of Mr Wertheim's materials there has been the complication that Mr Wertheim's photographs of the mark Y7 show it with the striation which the SCRO examiners have long argued adversely distorts the image.

Devon and Cornwall Constabulary

13.22. Mr Bell sent an abridged version of his letter of 2 June 1999 to the chief constables to the heads of fingerprint bureaux as he had received a number of enquiries, both national and international.[38] The head of the fingerprint bureau at Devon and Cornwall Constabulary by letter dated 20 August 1999 advised Mr Bell that, having

32 Mr Mackenzie 30 September page 53ff and FI_0046 paras 174-175 Inquiry Witness Statement of Mr Mackenzie
33 Mr Mackenzie 30 September pages 53-54 and FI_0046 para 176 Inquiry Witness Statement of Mr Mackenzie
34 Mr Leadbetter 23 October page 80
35 Mr Mackenzie 30 September page 37
36 Mr Mackenzie 30 September page 55
37 Mr Wertheim 24 September page 64
38 Mr Bell 3 July pages 44-45, 50

viewed "photographic copies" of the mark Y7 and print, in his opinion the two were not made by the same person.[39]

13.23. In his reply[40] Mr Bell reaffirmed his understanding of the line adopted by Crown Office at the meeting on 20 May and otherwise stated that SCRO officers were not at liberty to discuss their evidence nor to circulate fingerprints of persons who had been found not guilty.

Commentary on unwillingness of SCRO to release the fingerprint material

13.24. The inability of SCRO examiners to discuss their evidence is probably referable to considerations of confidentiality and, while cases are live,[41] may be linked to contempt of court. The proposition that the fingerprints of a person who has been acquitted should not be circulated is consistent with section 18(3) of the Criminal Procedure (Scotland) Act 1995 that requires such fingerprints to be destroyed. Arguably there might have been an exception applicable to the prints taken from Ms McKie when she was arrested because they are of the same kind as elimination prints that police forces generally keep for police officers and therefore retention could be justifiable under section 18(4)(b) of the Act. Nonetheless, that supports only retention of the prints for police purposes and not publication. Other legislation is also relevant. Retention and also circulation of prints would raise issues under the Data Protection Act 1998 and, as has been more recently determined by the European Court of Human Rights in the case of *S v UK* (2009) 48 EHRR 50, raises issues concerning the Article 8 rights (i.e. protection of private life) of the donor of the prints. Police forces and other public agencies do not have an unrestricted right to publish personal data.

13.25. Having regard to these matters SCRO was correct to be reluctant to publish the fingerprint material to facilitate public debate among fingerprint practitioners.

Further work at SCRO

13.26. Mr Bell described the media attention as relentless and it grew and included politicians. He was engaged almost full time addressing issues that they raised.[42] Though not a fingerprint expert himself, he continued to be happy with the integrity of the SCRO evidence about Y7. He received a personal presentation from Mr Mackenzie, which was "very compelling".[43] He arranged for Mr Mackenzie to give a presentation to chief constables.[44]

13.27. Mr Mackenzie explained that in reviewing the evidence he was assisted by three "gifts"[45] that had come to him after the trial: the training he received on ridgeology (enabling him to factor third level detail into his examination of Y7 and QI2); the CD of images circulated by Mr Kasey Wertheim (which showed the fault-line in Y7 more clearly); and the material Mr Wertheim put on the website through Mr German (the relevance of which is discussed in chapters 25 and 29).

39 DB_0618 and Mr Bell 3 July pages 45-47
40 DB_0622
41 The Asbury case, in which there was a pending appeal at this date, remained live.
42 FI_0043 para 9 Inquiry Witness Statement of Mr Bell
43 Mr Bell 3 July page 51
44 FI_0046 para 177 Inquiry Witness Statement of Mr Mackenzie. The Chief Constables were part of the SCRO Executive Committee.
45 Mr Mackenzie 30 September pages 25, 37, 55

January – February 2000

First BBC 'Frontline Scotland' documentary

13.28. The catalyst for external investigation would appear to have been the first of two documentaries (18 January 2000 and 16 May 2000) broadcast by the BBC. [46] In this programme, 'Frontline Scotland, Finger of Suspicion', Mr Wertheim, fingerprint examiners Ron Cook, Frank Williams, Ray Broadstock and Frank Reid and an unidentified person said to be a former senior fingerprint expert from SCRO said that Y7 was not made by Ms McKie. The programme stated that Mr Grieve had reached the same conclusion.[47]

13.29. The next day, 19 January 2000, Mr Crowe wrote to Mr Bell by fax commenting that what was new in the programme was the number of UK experts who all said Y7 was not Ms McKie's and the fact that a former SCRO examiner was apparently interviewed and agreed. He asked for confirmation that Y7 had been verified by senior officers in SCRO and an examiner from another force, that more than sixteen points of comparison had been found, and that there had been no other cases where fingerprint evidence had been seriously challenged.[48]

13.30. In his reply[49] Mr Bell reported that the evidence had been reviewed by Mr Mackenzie and Mr Dunbar and that they re-affirmed the identification in accordance with the 16-point standard. He also made the more general point already summarised that, while it was not known what source materials external examiners may have seen, the SCRO examiners had worked with "the actual evidence" and the internet images were considered to be inferior.

13.31. The Chief Constable of Strathclyde, Mr Orr, requested that the McKie case be placed on the agenda for the next meeting of the chief constables and the Chief Constable of Grampian, Mr Brown, asked Mr Robertson,[50] the chairman of the SCRO Executive Committee and the ACPOS Council at the time,[51] if he intended to order an inquiry.

Lothian & Borders fingerprint officers

13.32. A number of Lothian & Borders fingerprint examiners subscribed to a letter dated 26 January 2000 to the Minister of Justice and the Lord Advocate, copied to MSPs. The officers had reviewed, via the internet, material provided by Mr Wertheim and reached the conclusion "along with experts throughout the world" that Y7 was not Ms McKie's mark. They were critical of SCRO for not releasing the evidence in the case, were concerned that SCRO's stance brought "the whole fingerprint system into disrepute" and considered that the apparent "mis-identification" was at best a display of gross incompetence and at worst bore "all the hallmarks of a conspiracy". An independent fingerprint bureau should review SCRO's involvement in the case.[52]

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46 Lord Boyd of Duncansby 10 November page 41
47 The transcript is available at URL: http://news.bbc.co.uk/1/hi/scotland/605129.stm
48 CO_1947
49 SG_0545 and Mr Bell 3 July pages 57-61
50 Chief Constable of the Northern Constabulary
51 Of the SCRO Executive Committee and the ACPOS Council – see e.g. FI_0050 para 46 Inquiry Witness Statement of Sir William Rae
52 CO_1899. One of the people named in the letter (Miss Hannah) subsequently dissociated herself from it in a statement to Tayside Police - CO_2058.

13.33. Mr Mackenzie commented that those examiners "foolishly based their comparisons solely on materials posted on the internet".[53]

Decision to have an external review

13.34. In a letter to Mr Bell dated 4 February 2000, Mr Crowe mentioned that letters to the Lord Advocate following the Frontline Scotland broadcast had been passed for reply to the Justice Minister (then Jim Wallace[54]), who had ministerial responsibility for SCRO, and noted that the Justice Department might want the evidence in the case considered independently to verify the SCRO identification and indicate how the discrepancy between experts arose.[55] This suggestion was superseded by the decision to involve Her Majesty's Inspector of Constabulary for Scotland (HMCICS) made on 7 February.[56]

13.35. On 7 February the ACPOS Council met in the morning and the SCRO Executive Committee in the afternoon. The chief constables of the eight Scottish police forces were members of both.[57]

13.36. Sir William (then Mr) Rae, at the time Chief Constable of Dumfries and Galloway Constabulary, gave a statement to the Inquiry. He recalled that the BBC documentary had given a significant public profile to the alleged misidentification and that at the ACPOS Council meeting Mr Orr expressed concern that the issue would continue unabated unless ACPOS took the initiative and procured an independent assessment of the fingerprint evidence.[58] The ACPOS Council decided that this should happen and the chairman, Mr Robertson, agreed to raise the matter that afternoon at the meeting of the SCRO Executive Committee.

13.37. Mr Mackenzie made a detailed presentation in support of the identification at the meeting of the SCRO Executive Committee[59] but the committee agreed that Mr William Taylor, HMCICS, should be invited to conduct an independent assessment which should involve two or three eminent experts. The Scottish Executive representative said Ministers would support an independent assessment and an approach to HMCICS. Mr Bell welcomed this approach. Mr Crowe said that by then the case had become a matter of political concern, it was a big issue at the new Scottish Parliament,[60] allegations were being made that there might be something systemic wrong with SCRO, Mr McKie "was extremely good at articulating his complaint", the media was running with the story and it reached a stage where it was right for the authorities to make some more detailed enquiries than "the quick exercise" he and Mr Murphy had done at the start.[61]

53 FI_0046 para 181 Inquiry Witness Statement of Mr Mackenzie
54 He was also Deputy First Minister; now Lord Wallace of Tankerness.
55 CO_1956
56 FI_0048 para 10 Inquiry Witness Statement of Sheriff Crowe and CO_1969
57 FI_0050 paras 14 and 22 Inquiry Witness Statement of Sir William Rae
58 FI_0050 paras 45-48 Inquiry Witness Statement of Sir William Rae
59 CO_0396
60 The devolved Scottish Parliament was established in May 1999.
61 CO_0396, CO_1645, Mr Bell 3 July page 61, Mr Crowe 3 July pages 14-18 and FI_0048 para 10 Inquiry Witness Statement of Sheriff Crowe

13.38. Her Majesty's Inspectorate of Constabulary for Scotland (HMICS) was due to carry out an inspection of SCRO in December 2000 and this was brought forward in respect of those aspects specifically raised by the McKie case.[62]

March – June 2000

Second BBC 'Frontline Scotland' documentary

13.39. On 16 May 2000 in a documentary, entitled 'False Impression,' fingerprint evidence in the Asbury case was challenged and Mr Wertheim and Mr Allan Bayle, then a lecturer in fingerprinting and other subjects at the Scientific Support College for the Metropolitan Police Training Establishment at Hendon, stated that in their opinion QI2 was not the mark of Miss Ross.[63]

13.40. Mr Crowe said that this programme led to an investigation of QI2.[64]

HMICS's emerging findings

13.41. Mr Taylor's Inspectorate examined the McKie case,[65] with the assistance of three fingerprint experts, Mr Zeelenberg Head of the National Fingerprint Service in the Netherlands, Mr Rudrud Head of the National Fingerprint Service in Norway and Mr Mervyn Valentine of Greater Manchester Police.[66]

13.42. Mr Zeelenberg and Mr Rudrud reviewed the identification of Y7 and concluded that SCRO was incorrect in identifying Y7 as Ms McKie's.[67] They gave a presentation to Mr Taylor and others at Edinburgh on 16 June. Their written report, dated 28 June 2000, explains their reasons in detail and is stated to be a reproduction and elaboration of this presentation.[68]

13.43. HMICS presented the emerging findings of its inspection of SCRO on 21 June to a meeting attended by members of the SCRO Executive Committee and representatives from SCRO, ACPOS and Crown Office.[69] It was given in note form to Sir William Rae[70] by then the president of ACPOS.[71] The identification of Y7 was erroneous and HMICS found that the SCRO fingerprint bureau was not fully efficient and effective.[72]

The ACPOS Presidential Review Group and announcements in Parliament

13.44. Sir William Rae considered that the Inspectorate's emerging findings suggested that the Scottish Police Service could no longer rely on the expertise within the SCRO fingerprint bureau. The implications, he said, were serious; the term "crisis"

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62 FI_0050 para 49 Inquiry Witness Statement of Sir William Rae
63 The transcript of the second documentary is available at URL: http://news.bbc.co.uk/1/hi/scotland/749442.stm
64 Mr Crowe 3 July page 18
65 SG_0375 paras ii) and 1.2.4
66 SG_0375 para 1.2.5-1.2.7 and DB_0178. Mr Valentine focused on procedures - AZ_0031.
67 FI_0115 paras 32 and 34 Inquiry Witness Statement of Mr Zeelenberg
68 DB_0178
69 SG_0375 para 1.2.8
70 CO_1012
71 FI_0050 para 3 Inquiry Witness Statement of Sir William Rae - he was appointed President of ACPOS in 2000 for a period of 12 months.
72 Sir William explained that the latter phrase came from the legislation which described the purpose of such inspections as being to ensure that police forces were efficient and effective. FI_0050 paras 51 and 53 Inquiry Witness Statement of Sir William Rae.

was not unreasonable. Something had to be done to re-establish confidence of the public, the police and others working in the criminal justice system. "By that I mean there was only one acceptable standard of accuracy in relation to fingerprint identification which was 100% and anything less than 100% was unacceptable."[73]

13.45. Immediately following the meeting with HMICS, the ACPOS representatives reconvened to discuss how to respond. Sir William Rae thought they were all surprised by the outcome of the independent examination of the fingerprint. They had no explanation as to why such a misidentification had occurred and ACPOS had to try and discover what had happened. They agreed to set up the ACPOS Presidential Review Group (APRG) under his chairmanship to co-ordinate the Scottish Police Service's response to HMICS's findings.[74]

13.46. On the next day, Thursday 22 June, HMICS made the emerging findings known to Ms McKie's family and to the media without publishing an interim report.[75]

13.47. Later that day, the Justice Minister and the Lord Advocate, by then Colin Boyd Q.C., both made statements to the Scottish Parliament. Mr Wallace informed members of HMICS's emerging findings and ACPOS's decision to set up the APRG.[76] Mr Boyd reported that he had instructed that:

- in all current and future cases involving SCRO fingerprint evidence an external check would be carried out;
- independent experts were to examine the fingerprint evidence in *HMA v Asbury* with the results communicated to Mr Asbury's solicitors.[77]

Implementation of decisions

13.48. By letter dated 23 June 2000, Mr Crowe asked that the APRG consider how officers from other bureaux could provide confirmation of SCRO fingerprint reports until matters were resolved,[78] and Sir William Rae responded that Mr Bell was exploring using the services of Metropolitan Police or the Royal Ulster Constabulary.[79] Thereafter arrangements were put in place which lasted for over one year.

13.49. Mr Crowe was asked to work with SCRO to restore a normal service for fingerprint evidence in criminal cases.[80]

13.50. The APRG appointed Mr McInnes, Deputy Chief Constable of Fife Constabulary, to carry out a scrutiny of the management and resourcing of SCRO to assist the implementation of HMICS's Inspection Report.[81] He led the Change Management Review Team (the CMRT) whose remit was: "To undertake a 90 day scrutiny of the

73 FI_0050 para 54 Inquiry Witness Statement of Sir William Rae
74 FI_0050 para 55 Inquiry Witness Statement of Sir William Rae
75 A matter of concern to the Justice 1 Committee - Scottish Parliament Justice 1 Committee 3rd Report, 2007 (Session 2) Inquiry into the Scottish Criminal Record Office and the Scottish Fingerprint Service, SP Paper 743 Edinburgh RR Donnelly, 2007 paras 394-395.
76 Scottish Parliament Official Report 22 June 2000 Col 681; CO_1646
77 Scottish Parliament Official Report 22 June 2000 Col 687; CO_1638
78 CO_1026
79 CO_1633 and FI_0048 para 12 Inquiry Witness Statement of Sheriff Crowe.
80 FI_0048 para 12 Inquiry Witness Statement of Sheriff Crowe
81 CO_1633 and FI_0050 para 58 Inquiry Witness Statement of Sir William Rae

SCRO Fingerprint Bureau which will inform the ACPOS Presidential Review Group established to undertake a wide ranging review of SCRO."[82]

13.51. Mr Bell in his evidence to the Inquiry said that in his mind the main thrust of HMICS's finding that the bureau was "not fully efficient and effective" was the case load the bureau was carrying. There was a 7000-case backlog when he arrived at SCRO in November 1998, staff morale was not good and their grading was lower than in some other bureaux in Scotland; the working environment was not good; and the new Automatic Fingerprint Recognition (AFR) system made additional demands on experts' time. He was assisted in addressing these issues by the Change Management Review Team and others.[83]

13.52. Mr Crowe intimated to Sir William Rae that arrangements were being made to have the evidence in the Asbury case independently examined.[84] Mr Asbury was then in prison.

13.53. The APRG appointed Mr James Mackay, Deputy Chief Constable of Tayside Police, on 23 June: "To conduct an investigation into all of the circumstances which resulted in the identifications by the Fingerprint Bureau of SCRO in the murder of Marion Ross in Kilmarnock in January 1997, in particular, the difference in opinions of SCRO fingerprints experts and the experts recently consulted by Mr William Taylor, HMCIC for Scotland."[85]

Mr McKie's response

13.54. Mr McKie wrote to Mr Wallace by letter dated 26 June 2000, acknowledging the steps that had been taken but emphasising that in his view matters other than failings in the operation of SCRO required to be addressed and these "struck at the very heart of the prosecution system in Scotland". He listed five specific matters that required to be addressed, three of which in part come within this Inquiry's terms of reference:

(i) "That officers of the Crown Office failed to take action on matters raised before, during and after her trial which clearly pointed to her innocence and the possible guilt of SCRO and its officers";

(ii) "That the SCRO 'experts' namely Charles Stewart, Hugh McPherson, Fiona McBride and Anthony McKenna should be investigated in respect of possible perjury and criminal conspiracy committed by them at the trials of David Asbury and Shirley McKie";

(iii) "That the organisations and persons responsible for supervising SCRO failed to carry out their responsibilities and as a result failed to identify serious shortcomings in the operation of that organisation."[86]

82 SG_0522 para 11.3.1 (its October 2000 report)
83 Mr Bell 3 July pages 64ff
84 CO_1026
85 CO_1633, FI_0050 para 59 Inquiry Witness Statement of Sir William Rae
86 CO_1543

July – September 2000

Investigation of allegations of criminality

13.55. On 6 July 2000 Mr William Gilchrist, then a Regional Procurator Fiscal at Paisley,[87] was instructed by the Lord Advocate to investigate Mr McKie's complaints of alleged criminal conduct.[88]

13.56. Four SCRO officers in particular were under consideration, Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna,[89] the officers who had signed the relevant reports and, other than Mr McKenna, had given evidence in court.

13.57. The role of Mr Mackay and his team changed. Mr Gilchrist was now a procurator fiscal investigating suspected criminal activity with Mr Mackay to assist him and under his direction.[90]

13.58. By this time Crown Office had decided to have the fingerprint evidence in *HMA v Asbury* independently reviewed and initially it was decided that, since *HMA v Asbury* was under appeal, Mr Gilchrist should restrict his investigation to allegations of criminal conduct only in relation to the McKie prosecution and Mr Mackay was similarly to confine his inquiries meantime.[91]

13.59. After Mr Gilchrist met Mr McKie and Mr Cassells, then Ms McKie's solicitor, on 14 July,[92] he informed Mr Crowe that Mr McKie's allegations of conspiracy and perjury encompassed the Asbury case and that Mr McKie's position was that the SCRO evidence in relation to both Y7 and QI2 Ross was not only wrong but untenable. Accordingly Mr Gilchrist considered that he ought to investigate both cases. In his opinion a decision was not needed about the Asbury case until after the results of the independent examination of the fingerprint evidence from the tin but if the result was that QI2 was not Miss Ross's then his investigation should undoubtedly be extended.[93]

Examination of QI2 and other marks: Mr Rokkjaer and Mr Rasmussen

13.60. It would appear that Crown Office initially instructed Mr Malcolm Graham to provide a report without appreciating that he had been the examiner instructed by the defence in *HMA v Asbury.*[94] He provided a report dated 23 June 2000.[95] Mr Graham explained to the Inquiry that he did not review the material in the case at this stage, but may have provided a copy of a report he prepared in 1997 to Crown Office.[96]

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87 Now Sheriff Gilchrist
88 CO_0021 and FI_0072 para 3 Inquiry Witness Statement of Sheriff Gilchrist
89 FI_0072 para 8 Inquiry Witness Statement of Sheriff Gilchrist
90 FI_0072 para 8 Inquiry Witness Statement of Sheriff Gilchrist and FI_0050 para 62 Inquiry Witness Statement of Sir William Rae
91 CO_1451, CO_1509 and FI_0048 para 15 Inquiry Witness Statement of Sheriff Crowe
92 FI_0072 para 9 Inquiry Witness Statement of Sheriff Gilchrist
93 FI_0072 paras 10 and 13 Inquiry Witness Statement of Sheriff Gilchrist and CO_0014
94 FI_0048 para 14 Inquiry Witness Statement of Sheriff Crowe
95 CO_2755
96 Mr Graham 9 July page 40. CO_2755 bears a footer "23/6/00." This was the same as a report dated 8 May 1997, DB_0201, which was not Mr Graham's final report in 1997, DB_0202. He had printed off an earlier copy in error - Mr Graham 9 July page 54.

13.61. In any event, by 6 July 2000 when Mr Gilchrist was first instructed the Crown had decided to instruct Danish experts to examine the fingerprint evidence in the Asbury case;[97] and Mr Rokkjaer and Mr Rasmussen were instructed.

13.62. Mr Crowe accompanied the Danish experts, Mr Rokkjaer and Mr Rasmussen, when they visited the procurator fiscal's office in Kilmarnock on 31 July 2000 to examine the productions. His recollection was that there was a great deal of pressure to have the marks that were important to the Asbury appeal checked and, therefore, the main focus was on those marks. He did not think they examined Y7 because it was the subject of another investigation.[98]

13.63. Mr Rasmussen's precognition taken by Mr Crowe that day records that he was acting Head of the Police Fingerprint Bureau in Denmark and that he was satisfied that QI2 (Ross) was not made by Miss Ross.[99] Mr Rokkjaer is recorded as corroborating Mr Rasmussen's findings.[100] Mr Crowe remembered noting their "incredulity" when they viewed QI2 (Ross) and that they "kept saying how they could not believe how anyone could make an identification on the prints".[101] He described this as his 'Damascene moment'. He had never had a case where one mark was disputed but to have two disputed caused him real concern. It was a turning point.[102]

Suspension of the SCRO officers

13.64. On 2 August, the APRG met to consider interim reports from Mr McInnes and Mr Mackay.[103]

13.65. The Mackay enquiry had approached the National Training Centre for Scientific Support to Crime Investigation at Durham (the NTC) to secure its own independent expert.[104] Mr Geoffrey Sheppard, then its Head of Fingerprint Training, had been instructed to compare Y7 with Ms McKie's fingerprints. Mr Sheppard carried out a comparison, as did two other fingerprint examiners at the NTC, Mr Mike Thompson and Mr Geoffrey Grigg.[105]

13.66. In the afternoon of 2 August, Mr Ablett (not a fingerprint examiner but director of the NTC at the time) and Mr Sheppard met members of Mr Mackay's team and informed them of the NTC's findings. Mr Mackay joined them later, and the meeting is recorded as finishing at 17:00.[106] The NTC reported that Y7 was not made by Ms McKie and that "without adequate explanation", there appeared to have been both collective manipulation of evidence and collective collusion to identify Y7 as Ms McKie's.

97 CO_0021
98 FI_0048 para 17 Inquiry Witness Statement of Sheriff Crowe
99 CO_0022
100 CO_0023
101 FI_0048 para 17 Inquiry Witness Statement of Sheriff Crowe and Mr Crowe 2 July page 146 - the precognition did not deal with mark QD2 as Mr Crowe did not regard it as evidentially significant.
102 Mr Crowe 2 July page 156
103 FI_0050 para 64 Inquiry Witness Statement of Sir William Rae
104 CO_1509 and CO_1451
105 FI_0082 Inquiry Witness Statement of Mr Sheppard and FI_0081 Inquiry Witness Statement of Mr Grigg
106 CO_2549 and CO_1318

13.67. Mr Mackay phoned Sir William Rae at 17:45 to tell him, referring also to Mr Rudrud and Mr Zeelenberg and Mr Wertheim.[107]

13.68. Sir William Rae spoke to other members of the APRG, and the Deputy Chief Constable of Strathclyde,[108] and next morning contacted Mr Bell, asking him to suspend the officers which Mr Bell did after receiving written confirmation from Sir William Rae.[109]

13.69. Accordingly, on 3 August 2000, Ms McBride, Mr McKenna, Mr MacPherson and Mr Stewart were subject to precautionary suspension.

13.70. After he had consulted with other members of the APRG, Sir William Rae prepared a press release explaining that the four officers had been suspended from duty on full pay.[110]

13.71. The suspension of the officers is discussed in chapter 17.

The meeting of experts

13.72. A meeting of experts took place at the Scottish Police Training College at Tulliallan on 15 August 2000, attended by Mr Mackenzie and Mr Dunbar, Mr Zeelenberg and Mr Rudrud. Dr Robert Bramley from the Forensic Science Service acted as facilitator and Mr Mackay, Mr Gilchrist and others including a stenographer were also present.[111]

13.73. The meeting is discussed in more detail in chapter 16.

13.74. Mr Mackenzie and Mr Dunbar made a presentation, followed by a presentation by Mr Rudrud and Mr Zeelenberg, after which there was a facilitated discussion.[112] At the end of the meeting Mr Mackenzie and Mr Dunbar adhered to the view that Y7 was made by Ms McKie, and Mr Zeelenberg and Mr Rudrud remained of the opposite view.

13.75. Towards the end of the meeting Mr Mackenzie saw, briefly, for the first time Mr Wertheim's defence production and an unmarked enlargement of a Kent photograph of Y7, as well as the piece of door-frame.[113] A request was subsequently made for copies of the Wertheim and Kent materials to be sent to SCRO and these were received within a few days.[114]

13.76. In a paper dated 23 August, Mr Rudrud and Mr Zeelenberg submitted their comments on the SCRO presentation at Tulliallan, reaffirming their conclusion that Y7 was not the fingerprint of Ms McKie.[115] This was a detailed paper that included the illustration of the "leapfrogging" pattern of movement assumed by Mr Mackenzie's analysis of the mark which has been reproduced as figure 13 in

107 FI_0050 para 65 Inquiry Witness Statement of Sir William Rae
108 FI_0050 para 67 Inquiry Witness Statement of Sir William Rae
109 FI_0043 para 20 Inquiry Witness Statement of Mr Bell and PS_0195
110 FI_0050 para 70 Inquiry Witness Statement of Sir William Rae and CO_1339
111 The meeting was minuted (CO_0050), which Mr Mackenzie commented on in FI_0046 para 240ff Inquiry Witness Statement of Mr Mackenzie.
112 CO_0050
113 FI_0046 para 226 Inquiry Witness Statement of Mr Mackenzie
114 FI_0046 para 231 Inquiry Witness Statement of Mr Mackenzie
115 AZ_0007 and FI_0115 para 47 Inquiry Witness Statement of Mr Zeelenberg

chapter 25. In summarising this in his report (see below) Mr Gilchrist said that the SCRO presentation "strongly suggested to Rudrud and Zeelenberg that the comparison was done in a reverse order. In other words, they felt that Mackenzie and Dunbar had looked at the print and tried to find similarities in the mark. This gives rise to the danger of stretching tolerances in order to establish similarities."

13.77. Mr Mackenzie prepared an additional report dated 29 August 2000, in which he commented on Mr Wertheim's defence production, Mr Kent's photographs, and a copy of the Rudrud and Zeelenberg report. He adhered to his conclusion on Y7 and was critical of the quality of the other source materials that had been used, stating his preference for the original Strathclyde Police image of Y7 and the police elimination prints.[116]

Mr Mackenzie and Mr Dunbar moved to non-operational duties

13.78. In September 2000 Mr Mackenzie and Mr Dunbar were transferred to non-operational duties.[117] The background to this decision is explored in chapter 16; the decision reflected a concern that these officers had declined the opportunity afforded to them after the Tulliallan meeting to change their opinion in the light of the emerging conclusion of the Mackay investigation that Y7 had clearly been misidentified.

Written report from the Danish experts and extension of Gilchrist and Mackay investigations

13.79. In his letter to Sir William Rae on 3 August, Mr Mackay had said they still awaited Crown Office investigation into the fingerprint found on the tin within the Asbury house i.e. QI2 Ross.[118]

13.80. The Danish experts reported in writing on 7 August 2000.[119] The report referred to Production 99 in relation to QI2 Ross[120] and Production 98 in relation to other marks which SCRO had identified as Mr Asbury's.[121] Their conclusions were:

(i) the fingerprint QI2 (Ross) did not originate from Miss Ross;

(ii) XF was identical to the impression of Mr Asbury's right forefinger;

(iii) QD2 did not originate from Mr Asbury;[122]

(iv) the quality of the photographs of QE2, QL2 and QI2 (Asbury) in the production was too poor for comparison, and special light, which was not available, would have been required to examine the impressions on the tin itself. Therefore it could not be determined whether these impressions originated from Mr Asbury.[123]

116 CO_0063 and FI_0046 para 204ff Inquiry Witness Statement of Mr Mackenzie
117 FI_0053 para 10 Inquiry Witness Statement of Mr Dunbar and SP_0004 pdf page 42
118 CO_1010
119 CO_0030 (which includes other marks not relevant to the Inquiry)
120 CO_0207h and SG_0131(photocopies) which contains a charted enlargement of QI2 Ross
121 SG_0010h (which includes a charted enlargement of XF)
122 In a letter dated 1 February 2006 (DB_0200) Frank Jensen of the Danish National Police subsequently agreed the identification of QD2 as the print of David Asbury - see chapter 27.
123 As a result they appeared to contradict SCRO's findings as regards QE2, QL2 and QI2 Asbury - see chapter 27.

13.81. In September the remit of Mr Gilchrist's investigation was extended to cover allegations of perjury at the trial of Mr Asbury.[124] Mr Crowe's letter to Mr Gilchrist dated 13 September confirmed the Lord Advocate's instruction and enclosed a copy of the Danish experts' report.[125]

APRG and HMICS interim reports

13.82. The report of the HMICS inspection of the SCRO fingerprint bureau was published on 14 September 2000[126] as was an interim report by the APRG indicating the measures taken to date.[127]

NTC reports

13.83. A letter from NTC to the Mackay enquiry dated 28 September 2000[128] enclosed a report, signed on 27 September, which narrated the steps taken at NTC in examining Y7 and comparing it with Ms McKie's prints. This included taking the precaution of having the mark re-photographed by a photographer at Durham to ensure that the comparison was done to Durham standards "end to end".[129] The NTC examiners were aware that there was by then damage to the mark but Mr Sheppard expressed the view (which the Inquiry accepts) that the damage was not material.[130] The NTC examiners were unanimous that the mark was not made by any of Ms McKie's digits. The material prepared by SCRO for court was critically reviewed and a report from Mr Wertheim was said to demonstrate fully the discrepancies identified by the NTC examiners. Given the inferior quality of the SCRO court productions the NTC had "grave doubts" that the examinations were carried out totally independently and, as previously conveyed orally, "without adequate explanation there appears to be collective manipulation of evidence and collective collusion" to erroneously identify Ms McKie. "As to how such an erroneous identification came about it is assumed that, this being an elimination exercise, it was not treated or approached in the professional manner which the service and ultimately the courts are entitled to expect."

13.84. By letter dated 21 September the NTC had been asked to examine QI2 with a view to indicating whether NTC agreed with other examiners that it was not that of Miss Ross and to offer an explanation for SCRO having got it wrong. They were also to compare it with Mr Asbury's prints. A brief report from Mr Sheppard dated 19 October 2000 said that QI2 had been compared with the fingers and thumbs of Miss Ross and Mr Asbury with a negative result. "As to how such an erroneous identification was made originally I am totally at a loss to offer any explanation other than what I have referred to previously as the ELIMINATION MENTALITY" (emphasis original).[131]

13.85. By this time the NTC had also been asked to compare Y7 and QI2 with various persons' fingerprint forms.[132] Each comparison resulted in a negative result. The

124 FI_0072 para 15 Inquiry Witness Statement of Sheriff Gilchrist
125 FI_0072 para 14 Inquiry Witness Statement of Sheriff Gilchrist and CO_0010
126 SG_0375
127 CO_0378
128 CO_1065
129 FI_0082 paras 38-39 Inquiry Witness Statement of Mr Sheppard; the photographs are CO_0204h
130 FI_0082 para 38 Inquiry Witness Statement of Mr Sheppard
131 CO_0392
132 Referred to in CO_1065

exercise is explained in more detail in supplementary statements of Mr Sheppard and Mr Thompson of the NTC to the Inquiry.[133]

Apology to Ms McKie

13.86. Around 12 September 2000, Sir William Rae met with Ms McKie and her father and extended to her an apology on behalf of the SCRO Executive Committee for all the distress she had suffered as a consequence of the misidentification of Y7.[134]

October – November 2000

Mr Mackay's report and the CMRT report

13.87. On 20 October 2000 Mr Mackay submitted his report to Mr Gilchrist. Sir William Rae said he had sight of the report at the time but it was "strictly confidential". The report has not been published but an excerpt became publicly available in 2006,[135] and a synopsis was made available by the Lord Advocate to the Justice 1 Committee inquiry.[136]

13.88. The Change Management Review Team (CMRT) that ACPOS had set up, under the APRG, also reported in October 2000, and included responses to the recommendations and suggestions made by HMICS.[137]

Mr Gilchrist and the NTC

13.89. In November 2000 Mr Gilchrist obtained a statement from Mr Sheppard,[138] although Mr Sheppard did not recollect this by the time of the Inquiry. Mr Sheppard, commenting on this statement during the hearings, affirmed the view he expressed in it that the identification of Y7 was "either gross incompetence or pure fabrication".[139]

13.90. On 29 November 2000, Mr Gilchrist asked Mr Mackay to commission a further and more detailed report from the NTC.[140] He explained to the Inquiry why he had involved the experts from Durham. He had to go beyond considering whether or not the marks had been correctly identified. He had to look at what the SCRO officers had done and to investigate whether or not it could be proved beyond reasonable doubt that they had either deliberately misidentified one or both of the marks or had wilfully failed to admit to a mistake. This required expert evidence addressed to the material as seen by the SCRO officers and that was what he sought from Durham. The Durham experts were not being asked to offer another assessment of Y7 and QI2 as this had been done already by other experts.[141]

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133 FI_0206 Inquiry Witness Statement (Supp.) of Mr Sheppard and FI_0207 Inquiry Witness Statement of Mr Thompson. See chapter 3
134 FI_0050 para 72 Inquiry Witness Statement of Sir William Rae
135 See below
136 URL: http://www.scottish.parliament.uk/business/committees/justice1/papers-06/J1_S2_06_28_5J1CtteReportsynopsisAug06.pdf. This is referred to in the Justice 1 Report at pdf pages 22-23 URL: http://www.scottish.parliament.uk/business/committees/justice1/papers-06/FinalPDFversion-volume1.pdf
137 SG_0522
138 CO_0032, FI_0072 para 23 Inquiry Witness Statement of Sheriff Gilchrist and FI_0082 para 90 Inquiry Witness Statement of Mr Sheppard
139 Mr Sheppard 8 July page 67-74, 73
140 CO_0009
141 Mr Gilchrist 24 June pages 144-145 and FI_0072 paras 16-25 Inquiry Witness Statement of Sheriff Gilchrist

2001: the SCRO officers, Mr Gilchrist's report

13.91. In May 2001 the Director of SCRO advised Mr Mackenzie, Mr Dunbar, Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna that after the conclusion of the Crown's assessment of a possible criminal case an evaluation of any disciplinary issues would be required. In the interim, Mr Mackenzie and Mr Dunbar remained on non-operational duties and Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna remained suspended.[142]

NTC report

13.92. On 12 June 2001 Mr Gilchrist met with examiners from Durham when they explained their conclusions.[143]

13.93. Following the meeting a final report was produced by the NTC, dated June 2001, reviewing its work and providing a detailed analysis of both Y7 and QI2 Ross and the relative prints. Y7 was not identical with the left thumb print of Ms McKie, the mark was a partial impression in which no pattern type was visible, it could be a thumb though no absolute determination could be made. It appeared to be made by a single contact, not a double touch as the SCRO examiners had suggested, which was significant as features ignored in the original evidence were now included in the overall analysis and comparison. QI2 revealed a limited amount of first, second and third level detail. Very little second level detail could be seen due to a lack of clarity in the quality of the ridge detail. There were some areas of the mark where the ridge flow was incomplete and the interpretation of the detail in the Scottish evidence was "speculative to say the least". The NTC had no doubt that QI2 and the inked impression of the right forefinger of Marion Ross were not identical.[144]

Meetings with other examiners

13.94. Mr Gilchrist wrote to Mr Crowe on 13 June 2001[145] to indicate that he was minded to interview the four experts who had supported the SCRO identifications: Mr Mackenzie, Mr Dunbar, Mr Swann and Mr Graham. He anticipated that they would be called as defence witnesses in any prosecution and he proposed to put the Durham material to them to judge their reaction to what the prosecution case might be against the SCRO officers and also to see if this material caused any of them to change their position. He had to assess the strength of any defence case and the Crown had to look at any potentially exculpatory evidence.[146]

13.95. He was able to interview Mr Swann and Mr Graham. By the time of the Inquiry he had little recollection of those meetings beyond what was in his report.[147] At least at that stage he had been unable to interview Mr Mackenzie and Mr Dunbar because, so he understood, of legal advice they had received at the time.[148] It did not appear

142 SP_0004 - para 3.20 of Annex 1(a) to Black Report of internal disciplinary procedure investigation dated 28 February 2002
143 FI_0072 para 26 Inquiry Witness Statement of Sheriff Gilchrist and FI_0082 para 92 Inquiry Witness Statement of Mr Sheppard
144 CO_2003
145 CO_0008
146 FI_0072 paras 29-33 Inquiry Witness Statement of Sheriff Gilchrist
147 FI_0072 paras 41-42 Inquiry Witness Statement of Sheriff Gilchrist
148 The legal advice was being reconsidered. Mr Gilchrist 24 June pages 138-139 and CO_0007 - letter from Mr Gilchrist to Mr Crowe dated 6 July 2001

possible to speak to Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna as they had declined to answer any questions at interview under caution.

Mr Gilchrist's report

13.96. Mr Gilchrist submitted his report to Crown Office together with a letter dated 6 July 2001 to Mr Crowe. He attached the reports from Messrs Rudrud and Zeelenberg and from Messrs Rokkjaer and Rasmussen, two reports from Mr Wertheim (dated 2 April 1999 and 30 March 2000) the NTC report and an extract from "the Tayside Police report" in which, he wrote, the Mackay enquiry team summarised their findings.[149]

13.97. Mr Gilchrist's report[150] runs to 34 pages and contains a detailed narration and analysis of the evidence. He proceeded on the basis that in order to mount a successful prosecution the Crown would have to prove two things: (1) that there was a misidentification of each mark and (2) that the SCRO examiners had either deliberately misidentified the fingerprints or, having made an initial mistake, they wilfully failed to admit to that mistake at a stage when it must have been apparent to them that they had made a misidentification. On the first issue Mr Gilchrist was certain that they were not entitled to make positive identifications and, in particular, that they were "stretching the tolerances" to establish 16 similarities; but though he was "reasonably confident" that these were misidentifications he did not have the same degree of certainty in that conclusion. As to the second issue, relating to criminal culpability, it had proved extremely difficult to get the various experts to offer an opinion as to whether the misidentifications resulted from incompetence or were wilful. Mr Wertheim had initially said gross incompetence but had firmed up in support of dishonest intent in view of the state of the illustrative enlargements but the NTC examiners said that the SCRO examiners were either incompetent or dishonest and were reluctant to offer an opinion as to which it was. Mr Gilchrist noted the conflict in the expert evidence in relation to both marks and, having had the benefit of attending the facilitated discussion at Tulliallan, he observed that it was extraordinarily difficult for a layman to follow the detail and he was forced to the conclusion that the jury would have reasonable doubt and therefore his view was that a conviction was "highly improbable".[151]

13.98. Having completed his investigation into the allegations of criminal conduct he wanted to revert to SCRO regarding QI2. QI2 had not had the same level of scrutiny as Y7 and he was uncomfortable about not having been able to seek SCRO's view on the evidence that it was not made by Miss Ross. If the Crown was going to concede that it was not Miss Ross's mark he would prefer that it was after SCRO had a further opportunity to examine QI2.

Contact between Mr Gilchrist and Mr Mackenzie

13.99. Mr Mackenzie had not looked at QI2 before.[152] Arrangements were made for him to be provided with enlargements[153] and he provided an opinion on that mark

149 CO_0007 and CO_0003. The attachment to Mr Gilchrist's report was an extract from section 7 of the full report "Criminal Allegations against SCRO Personnel".
150 CO_0003
151 CO_0003 pages 30, 34, 35 and CO_0007
152 FI_0072 paras 43-48 Inquiry Witness Statement of Sheriff Gilchrist
153 CO_0007

producing a letter,[154] a report on QI2[155] and booklet of photographs[156] all dated 27 July 2001. He found twenty nine ridge characteristics and twenty three incipient ridges in sequence and agreement. He followed that up with transparencies in a booklet dated 19 February 2002[157] showing third level detail in agreement.[158]

13.100. Mr Mackenzie explained his views on Y7 to Mr Gilchrist in essentially the same terms as the explanation given to the Inquiry. Mr Gilchrist wrote: "I was left with the impression that this was a man who genuinely believes that the fingerprint is that of Shirley McKie. Although I tend to be unduly swayed by the last expert to whom I have spoken I have also to say that he created a doubt in my mind as to whether the other experts are right when they say that it definitely cannot be Shirley McKie's print."[159]

13.101. Mr Gilchrist explained this to the Inquiry saying: "every expert I spoke to was genuine and was trying to be honest. So not having any doubts about their credibility, I invariably found their technical explanation for their view persuasive. Unduly: well perhaps I should not have said 'unduly', perhaps I should have just have said I tend to be swayed by the last expert."[160]

13.102. After he saw Mr Mackenzie, Mr Gilchrist's view shifted slightly. With two opposing camps both of whom were absolutely definite that it was or was not a misidentification his final position was somewhere in the middle: it may or may not be a misidentification but no one was entitled to say definitely one way or the other.[161]

Crown Office assessment

13.103. Mr Crowe submitted Mr Gilchrist's report to the Lord Advocate with a detailed assessment in two notes dated 9 and 20 July.[162] In his statement to the Inquiry Mr Crowe further explained his reasoning by citing from the standard textbook on criminal law, Gordon's Criminal Law (now in its 3rd edition):

> "Normally the expression of an opinion cannot constitute perjury, if only because of the difficulty of proving that the witness did not hold the opinion he gave. But where the opinion can clearly be shown to have been given dishonestly, for example by showing that the witness was bribed to give it, *or that it was clearly an untenable opinion*, perjury may be committed."[163] (emphasis added)

13.104. The test in any prosecution would be whether the opinion expressed by the four officers was "untenable". Mr Crowe noted that while some experts were of the view

154 TC_0002
155 CO_0026
156 CO_2005h
157 CO_2004h
158 FI_0046 paras 160-167 Inquiry Witness Statement of Mr Mackenzie
159 CO_0006 – letter dated 19 July 2001 to Mr Crowe
160 Mr Gilchrist 24 June pages 148-149
161 Mr Gilchrist 24 June pages 65-66
162 CO_0027
163 Gordon Sir Gerald H. The Criminal Law of Scotland 3rd edition (Edited by Michael G A Christie): W Green, 2001 volume 2, para 47.12 copyright The Scottish Universities Law Institute, and FI_0048 para 20 Inquiry Witness Statement of Sheriff Crowe

that there had been misidentifications, others (Mr Swann and Mr Graham) still agreed with SCRO and he concluded:

> "There seems no basis for proceeding since a jury would be unlikely to cope with being led through microscopic examination of the fingerprints and their similarity/differences."

He recommended that no proceedings be taken.[164]

Lord Advocate's decision regarding prosecution

13.105. The Lord Advocate's handwritten note in response[165] addressed to the Deputy Crown Agent, dated 21 August 2001, was directed to Mr Gilchrist who by then had succeeded Mr Crowe.[166] In this the Lord Advocate conveyed his decision that there were to be no criminal proceedings against the SCRO officers.[167] He agreed with Mr Gilchrist's assessment that there was "no prospect of persuading a jury that the evidence given by the SCRO officers was given dishonestly".[168]

13.106. On 7 September 2001 it was announced that there would be no proceedings against the four officers.[169] A subsequent note from Mr Gilchrist to the Lord Advocate reported that on 7 December 2001 he had a meeting with Ms McKie, Mr McKie and Mr Russell MSP and explained that the Crown would not be making a comment on the evidence.[170]

13.107. The four remained suspended from duty and the question was whether they should return to work. Another issue was whether they could be used in trials in the future. These matters are discussed in chapter 17.

Requirement for second opinions in SCRO cases ends

13.108. In addition to the Lord Advocate's direction in June 2000 that independent fingerprint experts should verify all SCRO fingerprint identifications, SCRO management instructed a verification of serious cases which involved each of the four suspended officers in the year before and after the McKie case. Both verification exercises showed the SCRO identifications to be 100% accurate.[171]

13.109. Mr Crowe said that at some point in 2001 he persuaded the Lord Advocate that it was no longer necessary to verify SCRO fingerprint evidence. Over 1700 cases were examined and no other misidentifications had been found.[172] Indeed, in one case the external expert had disputed an identification which was subsequently confirmed by DNA evidence and the accused's admission that he had been at the locus.[173] The requirement ended in July 2001, and Mr Bell was notified of this in terms of a letter from Mr Crowe.[174]

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164 CO_0027
165 CO_0028
166 FI_0048 para 25 Inquiry Witness Statement of Sheriff Crowe
167 FI_0057 para 45 Inquiry Witness Statement of Lord Boyd
168 CO_0028
169 Referred to in the Black report SP_0004
170 CO_4066 pdf page 3
171 SP_0004 paras 3.16-3.18
172 FI_0048 para 24 Inquiry Witness Statement of Sheriff Crowe
173 FI_0048 para 12 Inquiry Witness Statement of Sheriff Crowe and see FI_0055 paras 32-33 Inquiry Witness Statement of Mr MacPherson
174 PS_0146

Civil proceedings

13.110. In the latter part of 2001 Ms McKie raised civil proceedings against the Strathclyde Joint Police Board as well as the Scottish Ministers and the four examiners Mr MacPherson, Mr Stewart, Mr McKenna and Ms McBride. These continued through to February 2006 when they were settled and their extended nature had an impact on the position of the SCRO officers – see chapter 17.

First Minister's statement

13.111. On 9 February 2006, in response to a call for an inquiry in the Scottish Parliament, the First Minister made this statement:

> "... a number of important investigations into elements of this case and, indeed, into the fingerprint provisions in Scotland have proved that the fingerprint evidence used in this country is reliable; that we can ensure that it can be used in the Scottish justice system; and that the people involved deal with it honestly and accurately. In this case, it is quite clear—and this was accepted in the settlement that was announced on Tuesday—that an honest mistake was made by individuals. I believe that all concerned have accepted that."[175]

Leak of Mackay report

13.112. Part at least of the Mackay report was leaked and was the subject of articles in the Scotland on Sunday newspaper on 12, 19 and 26 February 2006[176] and on 3 May 2006 the BBC published the Executive Summary of the report.[177]

The Justice 1 Committee report

13.113. The Justice 1 Committee of the Scottish Parliament published the report of its Inquiry into the Scottish Criminal Record Office and the Scottish Fingerprint Service on 15 February 2007.

13.114. It was not part of the remit of the Committee's inquiry to reach a view as to whether Y7 was or was not correctly identified as being Shirley McKie's mark. The Committee found it "staggering" that respected and highly experienced experts could have such widely divergent professional opinions on the identification of the mark.[178] It did not comment on QI2, as the matter was regarded as being *sub judice.*[179] It did not comment on QD2, as the identification was, at the time of the report, no longer disputed by the Danish experts.[180]

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175 Scottish Parliament Official Report, 9 February 2006, column 23240, URL: http://www.scottish.parliament.uk/business/officialReports/meetingsParliament/or-06/sor0209-02.htm#Col23255

176 URL: http://scotlandonsunday.scotsman.com/news/Exposed-the-criminal-coverup-at.2750333.jp ; URL: http://scotlandonsunday.scotsman.com/politics/Coverup-conspiracy-and-the-Lockerbie.2752201.jp ; and URL: http://scotlandonsunday.scotsman.com/shirleymckiefingerprintcase/How-justice-failed-an-innocent.2754176.jp

177 URL: http://news.bbc.co.uk/1/hi/scotland/4969830.stm

178 Scottish Parliament Justice 1 Committee 3rd Report, 2007 (Session 2) Inquiry into the Scottish Criminal Record Office and the Scottish Fingerprint Service, SP Paper 743 Edinburgh RR Donnelly, 2007, para 342

179 Scottish Parliament Justice 1 Committee 3rd Report, 2007 (Session 2) Inquiry into the Scottish Criminal Record Office and the Scottish Fingerprint Service, para 818

180 Scottish Parliament Justice 1 Committee 3rd Report, 2007 (Session 2) Inquiry into the Scottish Criminal Record Office and the Scottish Fingerprint Service, para 820

13.115. Among its comments, the Committee considered that the case highlighted inconsistencies in the identification and verification processes within the SCRO fingerprint bureau. Insofar as procedures were written down, they had not been properly followed, or had been ignored. In some instances ad hoc procedures had been adopted.[181] The Committee considered that the standards of court presentation displayed by SCRO fingerprint officers had been lacking, and that this resulted from inadequate training for and limited experience of officers facing cross-examination.[182]

13.116. It is not the role of this Inquiry to review or comment upon the findings contained in the report of the Justice 1 Committee or in any of the other reports that have been referred to in this chapter. They are included as forming part of the series of events following upon the acquittal of Ms McKie.

181 Scottish Parliament Justice 1 Committee 3rd Report, 2007 (Session 2) Inquiry into the Scottish Criminal Record Office and the Scottish Fingerprint Service, paras 352, 497

182 Scottish Parliament Justice 1 Committee 3rd Report, 2007 (Session 2) Inquiry into the Scottish Criminal Record Office and the Scottish Fingerprint Service, paras 489, 490

Part 2

Issues Arising from the Narrative

Part 2

Issues Arising from the Narrative

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CHAPTER 14

DID MS McKIE ENTER MISS ROSS'S HOUSE BEYOND THE PORCH?

Introduction

14.1. The mark designated Y7 and identified during the murder investigation as belonging to Ms Shirley McKie was found in Miss Ross's house on the door-frame of a downstairs bathroom.

14.2. Whether mark Y7 was correctly identified as Ms McKie's requires an assessment of the fingerprint evidence. Fingerprint evidence has, however, to be assessed along with all other relevant evidence. In this case that includes any evidence as to whether Ms McKie had an opportunity to deposit mark Y7.

14.3. From the outset Ms McKie denied having gone beyond the porch at the entrance to the house and therefore disputed that she had placed her fingerprint on the door-frame. Ms McKie maintained her denial and she was prosecuted for perjury: *Her Majesty's Advocate v McKie*. The situation was summarised by Lord Johnston, the trial judge, when he said in his charge to the jury,[1] if this was Ms McKie's fingerprint "how did it get there and when did it get there?"

14.4. Whether there was evidence of Ms McKie's presence in the house at a point beyond the entrance porch could be relevant to my consideration of the fingerprint evidence. For that reason I investigated what evidence, if any, there was as to her presence there.

14.5. According to Lord Johnston, in his charge to the jury, the Crown's suggestion was that Ms McKie must have slipped into the house some time on the Saturday after Miss Ross's body was found (i.e. on 11 January) and, "contrary to any logist's evidence, implanted the fingerprint."[2] Over the years rumour had circulated as to Ms McKie's presence in the house, and suggestions been made that there might be an individual or individuals who would be in a position to provide evidence that she had been in the house during the murder investigation. I sought to investigate what basis, if any, there was for such rumour and to secure evidence from witnesses which might either substantiate or dispel it. A number of pieces of information potentially relevant to the investigation of that rumour were brought to the attention of the Inquiry by Mr Brown, who had held until his retirement in 1983 the rank of detective chief inspector in Strathclyde Police.

Ms McKie

14.6. Ms McKie joined Strathclyde Police in September 1986 and for the next four and a half years she was based in Irvine as a uniformed officer. During this time she passed the examinations required for promotion to the ranks of sergeant and inspector. At the end of this period she became a CID aide and then applied to be an officer in the CID. In 1991 she moved to a female and child abuse unit in Kilmarnock where she worked in a group with Mr Shields. After two years she asked to be moved from this work as she found the focus of it too narrow and she

1 CO_1465
2 Lord Johnston used the term "logist" to refer to the officers who kept the log at the scene.

was appointed as a detective constable at Kilmarnock to serve in a group of two detective constables together with Mr Shields. On an eight week CID course she was second of 20 students, and she gained an HNC in Police Studies, a two-year course, with distinction.[3]

14.7. In late 1996 Ms McKie had been on secondment working with a team teaching a new staff appraisal system but training was suspended over the festive season and she came back to post in the CID.[4]

14.8. Ms McKie was part of the murder investigation team from 9 to 14 January. To facilitate the needs of the division she was allocated duties away from the investigation from 15 January onwards and engaged on normal routine CID enquiries. Her colleague Mr Shields indicated that he thought that this would be because she was due to return to her training secondment.[5]

14.9. Ms McKie and her police partner, Mr Shields, undertook enquiries for the investigation during this period, and where those enquiries might have presented a potential opportunity for Ms McKie to enter the house, I have considered them in detail.

9 January 1997 – enquiries by Mr Shields and Ms McKie

14.10. On 9 January Ms McKie reported for duty at Kilmarnock at 10:00 and began a shift that was due to end at 18:00. She was told that the body of Marion Ross had been found at 43 Irvine Road and that the circumstances were suspicious.[6]

14.11. Mr Shields and Ms McKie were given the task of establishing from Mr Kinnaird which doors he had found locked or unlocked on entering the house. They went to Mr Kinnaird's place of work where they interviewed him. They were then given an action to take Mr Kinnaird to the locus and they arranged to meet him there later to go through with him the way in which he had entered the house.

14.12. Ms McKie explained to the Inquiry that the keys for 43 Irvine Road were needed to show to Mr Kinnaird.[7] At 17:40 she asked the productions officer Mr Stevens at the office for the set of keys and this was noted by him in the log.[8] In his statement to the Inquiry he said his recollection was that Ms McKie told him that she could not get her head round the layout of the locus and the boss (Mr Heath) had said that she could go and have a look around.[9]

14.13. The reference to Ms McKie not being able to get her head round the layout did not appear in any of three earlier statements that Mr Stevens made and he said this was because it was only a casual conversation. He was having the same problem because he was not allowed into the premises and he thought that Ms McKie was

3 CO_2219 Mackay enquiry statement of Ms McKie
4 FI_0013 paras 65-66 Inquiry Witness Statement of Mr Heath and FI_0080 paras 5-6 Inquiry Witness Statement of Mr Shields
5 CO_3850 pdf page 68 paras 2.2-2.3, CO_2219 Mackay enquiry statement of Ms McKie and FI_0080 para 32 Inquiry Witness Statement of Mr Shields
6 CO_2219 Mackay enquiry statement of Ms McKie
7 FI_0071 para 15 Inquiry Witness Statement of Ms McKie
8 The property record sheet for the house keys in HOLMES - CO_1419 pdf page 2 and CO_3405
9 FI_0033 para 9 Inquiry Witness Statement of Mr Stevens

probably agreeing with him.[10] At her trial Ms McKie is recorded as saying that she had looked at both the photographs and the video of the locus but these did not give an idea of size within the house.[11]

14.14. Ms McKie said the instruction was cancelled quite quickly; they were not to take Mr Kinnaird to the locus.[12] Mr Stevens recalled that about ten minutes after she collected the keys she returned, said that the boss had changed his mind and handed them back.[13]

14.15. At 18:50 Mr Shields and Ms McKie attended Mr Kinnaird's home and during their visit Mr Kinnaird recounted to them a concern he had had about only having one key when he found that the third door into the house had two locks.[14] At around 19:45 Ms McKie went with Mr Shields to 43 Irvine Road in order to gain a better understanding of the account that Mr Kinnaird had just given them as to which front entrance doors he had found locked and unlocked and of the way in which he had entered the house.[15]

14.16. In her statement to the Inquiry Ms McKie said that they went into the porch and stood on the metal footplates and looked at the entrance doors and discussed which doors Mr Kinnaird had been referring to when he had spoken to them earlier.[16]

14.17. Mr Shields confirmed in his evidence that neither of them went any further into the house than the porch and he said that Ms McKie stood on the metal plate behind him.[17] Ms McKie estimated that they were in the porch for about two minutes.

14.18. Ms McKie no longer remembered the identity of the female police officer who was present and keeping the log though at the time she recognised the officer.[18]

14.19. According to the log the police officer on duty at that time was PC Stirling. In her Mackay statement Ms Stirling[19] recalled that Mr Shields and Ms McKie arrived at the locus having come out of the house next door. Mr Shields came into the porch and looked into the hallway. He said that he had been speaking with the person who found the body and that he was trying to establish which doors had been open at that time. Ms McKie leant into the porch, setting one foot on the porch floor, and tried to look into the hallway but she would not have managed this as the distance between the porch door and the door leading into the house was too great. She did not venture any further. They remained a few minutes before leaving. Their visit is

10 Mr Stevens 18 June page 104
11 CO_0214 para 86.6
12 FI_0071 para 15 Inquiry Witness Statement of Ms McKie
13 FI_0033 para 9 Inquiry Witness Statement of Mr Stevens
14 CO_2219 Mackay enquiry statement of Ms McKie and FI_0080 para 8 Inquiry Witness Statement of Mr Shields
15 FI_0071 para 20 Inquiry Witness Statement of Ms McKie and FI_0080 para 8 Inquiry Witness Statement of Mr Shields
16 FI_0071 para 21 Inquiry Witness Statement of Ms McKie
17 Mr Shields 9 July page 8
18 CO_2219 Mackay enquiry statement of Ms McKie and FI_0071 para 23 Inquiry Witness Statement of Ms McKie
19 CO_1271 Mackay enquiry statement of Ms Stirling

recorded in the log as between 19:45 and 19:47, and "arrives locus, enters porch only".[20]

14.20. There are three contemporaneous police witness statements in the name of Ms McKie: dated 17 January,[21] 21 January[22] and 14 February 1997.[23]

14.21. Two of those statements (17 and 21 January) were actually written by Mr Shields. This was confirmed in evidence by Mr Shields.[24] He said that the HOLMES action to submit a statement came to him as he was still engaged in the investigation and Ms McKie had left it. He found it easier to write both statements as he regarded it as an administrative matter. The statement of 17 January arose because their names appeared in the log and it covered the reason for being there. He said that he would have let her know that he had done so and given her a copy of the statement of 17 January. Ms McKie stated that she had not seen the document before.[25]

14.22. The statements of 17 January and 14 February addressed the visit to the house on 9 January. Both statements recorded that Ms McKie and Mr Shields interviewed Mr Kinnaird at his own home before going to the house at 19:45. In the statement of 17 January Mr Shields wrote that Ms McKie entered the porch area in order to establish clearly the doors referred to by the witness, remained within the porch area, touched no surfaces within the house and stood on the metal plates. In the statement of 14 February that Ms McKie herself wrote she said that neither she nor Mr Shields went further in to the house than the porch. She referred to metal stepping plates in the porch and said that Mr Shields stood on one in front of her. They left after approximately two minutes.[26] Her statement to the Mackay enquiry on 28 July 2000[27] was in the same terms. In her statement to the Inquiry of 2 June 2009[28] she repeated that they went no further than the porch and stood on the metal plates but she could no longer remember if Mr Shields was in front of her or behind her when they were at the locus.

14.23. Ms McKie did not know Miss Ross and stated that she had not been to 43 Irvine Road before 9 January 1997.[29]

10 January

14.24. Ms McKie had no recollection of the duties that she carried out on 10 January 1997.[30] For the time that she was on duty between 9 January and 14 January inclusive she said that she was with Mr Shields save during some refreshment and other short breaks.[31] Mr Shields could not remember what duties he and Ms McKie

20 The reason for the singular is that the entry is written for Mr Shields with Ms McKie's name added.
21 CO_0288
22 CO_0287
23 CO_0286
24 Mr Shields 9 July pages 3-5
25 FI_0071 paras 54, 58 Inquiry Witness Statement of Ms McKie
26 CO_0286 page 4
27 CO_2219 Mackay enquiry statement of Ms McKie
28 FI_0071 para 21 Inquiry Witness Statement of Ms McKie
29 CO_0286 and FI_0071 para 19 Inquiry Witness Statement of Ms McKie
30 FI_0071 para 26 Inquiry Witness Statement of Ms McKie
31 FI_0071 para 25 Inquiry Witness Statement of Ms McKie

undertook on 10 January. He said that they did not attend the locus, but they would have been working together.[32]

14.25. On the morning of 10 January various individuals were at the house, including Mr Fairley, Mr Hogg, Mr Thurley, Mr Moffat, and Mr Ferguson. Mr Fairley was there from 9:05 to 10:40.[33] The purpose of this further forensic examination was to examine the areas of doors and door-frames for microscopic traces of blood, which may have been brought up by the fingerprint examination.[34]

14.26. Mr Kerr said that on 10 January two members of the serious crime squad were in the house and were not wearing protective clothing. Mr Thurley confirmed that officers from the Serious Crime Squad had asked to look round the scene that day. It was not an unusual request and though he could not now recall whether they were in protective clothing, he would have expected them to be.[35] Mr Kerr told the Inquiry how he found two of these individuals in the house and had to ask them to leave.[36] Mr Thurley commented that the log-keepers should not have allowed them in if they were not in appropriate clothing, but the officers would have been more senior than the log-keeper and the latter might not have been in a position to stop them entering.[37]

At the locus on 11 January

14.27. On Saturday 11 January the office manager in the police incident room, Inspector James Thomson, asked Mr Shields and Ms McKie to go to 43 Irvine Road at around 17:45 to collect the log. Ms McKie brought the log to the police office where she copied it and handed a photocopy to the incident room. She then returned the original to the locus. The crime scene log did not record this visit, nor did HOLMES.

14.28. On both journeys Ms McKie was accompanied by Mr Shields who stayed in the car while she collected and returned the log to Irvine Road. The weather was very wet and windy. Ms McKie stated that she went no further than just inside the porch and was there for no more than a matter of seconds. She had no recollection of seeing Mr Kerr at the scene on that date.[38]

14.29. Mr Lees was on duty as log-keeper at 43 Irvine Road when Ms McKie collected the log and returned it. He said that he was seated in the porch facing directly out onto Irvine Road.[39] As soon as anyone stepped over the wooden threshold, which formed part of the outer door-frame,[40] he regarded them as having entered the locus.[41]

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32 FI_0080 paras 12-13 Inquiry Witness Statement of Mr Shields
33 SG_0537
34 CO_1149 Mackay enquiry statement of Mr Fairley
35 FI_0037 para 40 Inquiry Witness Statement of Mr Thurley
36 FI_0044 paras 28-30 Inquiry Witness Statement of Mr Kerr
37 FI_0037 para 40 Inquiry Witness Statement of Mr Thurley
38 CO_2219 page 4 Mackay enquiry statement of Ms McKie, FI_0071 paras 32-40 Inquiry Witness Statement of Ms McKie and FI_0080 paras 14-15 Inquiry Witness Statement of Mr Shields
39 Mr Lees 18 June page 116
40 The outer door-frame and door from outside into the porch are seen in ST_0003 pdf page 3 (Photograph A).
41 FI_0012 para 7 Inquiry Witness Statement of Mr Lees and Mr Lees 18 June page 119

14.30. Mr Lees said that when she arrived Ms McKie opened the porch door and while still standing on a step below the wooden threshold told him that she needed to have the log to get it photocopied.[42] It was windy and he told her she could come in but she said no and added words to the effect that this was because of the risk of cross-contamination.[43] He gave her the log and she returned it not much later. He did not record her as being there on either occasion as she did not cross the threshold and he said that he was certain that she did not do so.[44] On the first occasion he said he had invited her into the porch because the wind was blowing the blinds about and the log papers would start being blown around.[45] He remembered her remark about cross-contamination as being a reasonable observation for her to make.[46] On the second occasion she just handed him the log and there was virtually no conversation.[47]

14.31. The evidence of Mr Lees was at variance with that of Mr Kerr and Ms McKie about certain aspects of events on Saturday 11 January.

14.32. Mr Lees said that he was 100% certain that Ms McKie was not in the porch.[48]

14.33. In a statement that she made to the Mackay enquiry Ms McKie said that when she collected the log "I was only as far as the porch." Describing the return of the log she said "… I again went into the porch unaccompanied."[49] In her statement to the Inquiry[50] after referring to her statement made in the year 2000 to the Mackay enquiry she went on to say "On both occasions, I opened the porch door and stepped just inside the porch. I did not go further than the porch. I did not enter any other part of the locus."[51]

14.34. Mr Kerr said that he attended a briefing at Kilmarnock Police Office that day before going to the locus.[52] He was recorded in the log as arriving at 43 Irvine Road at 10:16 and leaving at 13:15 with Mr Wilson and Mr Moffat.[53]

14.35. Mr Kerr returned to the police office and there he had a discussion with the production officer about obtaining shoe boxes in which to put the door handles that were to be removed from the house for forensic examination.[54] He was wearing a white protective suit and while at the station Ms McKie remarked that he looked as if he was going decorating.[55] He said that she asked him if the scene of crime examination had been finished and if there was any chance of going to the house to get her head round the layout as she had specific tasks in relation to interviewing

42 FI_0012 para 18 Inquiry Witness Statement of Mr Lees
43 FI_0012 para 19 Inquiry Witness Statement of Mr Lees
44 Mr Lees 18 June page 123
45 Mr Lees 18 June page 123
46 Mr Lees 18 June page 124
47 FI_0012 para 23 Inquiry Witness Statement of Mr Lees
48 FI_0012 paras 22-23 Inquiry Witness Statement of Mr Lees
49 CO_2219 page 4 Mackay enquiry statement of Ms McKie
50 FI_0071 para 32 Inquiry Witness Statement of Ms McKie
51 FI_0071 para 36 Inquiry Witness Statement of Ms McKie
52 FI_0044 para 32 Inquiry Witness Statement of Mr Kerr
53 SG_0537 pages 7-8
54 FI_0044 para 35 Inquiry Witness Statement of Mr Kerr (DC Kerr confirmed that this discussion probably took place in the afternoon – Mr Kerr 18 June pages 4-5)
55 FI_0044 para 41 Inquiry Witness Statement of Mr Kerr

Miss Ross's family.[56] She added that it was particularly difficult to get one's head round about the layout of the house. He told her to speak to Mr Heath and that the examination of the scene was not complete.[57] Ms McKie has stated that she has no recollection of such a conversation and that in any event this was not a decision that Mr Kerr could have made.[58]

14.36. After he had gathered a number of shoe boxes from four or five retailers in Kilmarnock Mr Kerr said that he returned with them to the house.[59] The boxes were in a van. The productions officer, Mr Kirkland, was with him and he handed the boxes out to him but Mr Kerr was fairly certain that Mr Kirkland did not go into the house.[60]

14.37. Mr Kerr's arrival at that time did not appear in the log and he has offered as a possible explanation for this that there was a sterile bedroom at the back of the house which could be entered through patio doors. Rather than disturb the two scene of crime officers who were working in the house by carrying the boxes in past them he carried them round to the back and entered through the patio doors.[61]

14.38. Mr Lees said in his evidence that he had no recollection of Mr Kerr being at the house that afternoon. He said that if Mr Kerr had entered through the front porch he would have put this in the log.[62]

14.39. Mr Kerr said that while he was in the house later in the afternoon and crossing from the living room towards the bathroom or the front bedroom he saw Ms McKie in the porch.[63] The time at which Mr Kerr claims he saw this happen has been difficult to establish. In a statement dated 12 July 1997[64] he said that it was some time in the afternoon that he saw Ms McKie standing in the porch speaking to the uniformed officer on the door. In a precognition for *HMA v McKie*,[65] the accuracy of which Mr Kerr does not accept, the time of this was given as just after lunch and about 13:30.

14.40. A few minutes before he was due to give evidence in the trial of Ms McKie a procurator fiscal asked Mr Kerr about his recollection of timings, and he said that he knew it was Saturday afternoon. This was because he had the radio on listening to football as he was interested in the scores because he did football coupons. He added that Scottish matches began at 3pm.[66] He could not remember if the fiscal asked him if he knew that he was not entered in the log for that afternoon after 13:15. He recollected the procurator fiscal asked him if he was sure that it could have been 13:30 that he saw Ms McKie and he replied that it could not have been

56 FI_0044 paras 42-44 Inquiry Witness Statement of Mr Kerr
57 Mr Kerr 18 June page 6
58 FI_0071 para 28 Inquiry Witness Statement of Ms McKie
59 Mr Kerr 18 June page 13
60 Mr Kerr 18 June pages 15-16
61 Mr Kerr 18 June pages 13-14
62 Mr Kerr 18 June page 144
63 FI_0044 paras 44-47 Inquiry Witness Statement of Mr Kerr
64 CO_2593 page 5 Original police investigation statement of Mr Kerr
65 CO_2592 page 5 Original police investigation statement of Mr Kerr
66 Mr Kerr 18 June pages 25-27

then as the football was not on at that time and that he was reasonably comfortable that it was later on in the afternoon because the football was on.[67]

14.41. He did not appreciate when the procurator fiscal was asking him that the time was of importance[68] and when giving evidence at the trial he merely said that it was some time in the afternoon and it was a Saturday.[69] The evidence to the Inquiry of the trial advocate depute, Sean Murphy Q.C., was that Mr Kerr's evidence at the trial was that he saw Ms McKie at the locus around 17:00 on Saturday 11 January 1997.[70]

14.42. In his statement to the Inquiry Mr Kerr said that he thought that it was between 14:30 and 15:00.[71] However his statement also recorded that it may have been nearer to 17:30.[72] A short time before he gave evidence to the Inquiry he became aware that there was a time between 17:30 and 18:00 when Ms McKie had a legitimate reason to be at the house and his evidence to the Inquiry[73] was that it was possible that it was between 17:30 and 18:00 that he saw her at the house.

14.43. The crime investigation time sheet for Saturday 11 January 1997 which is contained in the report by Mr Wilson[74] recorded Mr Kerr as being on duty on that date from 08:45 to 17:15 and Ms McKie (under the name of Cardwell) as being on duty from 09:00 to 21:00.[75]

14.44. During his evidence to the Inquiry Mr Kerr was asked about the content of an off-the-record note at the end of the precognition taken from him for *HMA v McKie*.[76] This recorded that it was Mr Kerr's opinion that Ms McKie had possibly visited the premises for whatever reason and had relieved one of the log officers to allow that officer to visit the garage to purchase goods or to go to the toilet. His impression was that Ms McKie would have thought that the examination of the hall had been completed as it looked that way, and she would just simply have entered the hall when the log officer was not present. In his opinion no log officer would compromise his position to admit that he deserted his post. The precognoscer had noted Mr Kerr as being a very down to earth character and clearly not impressed by Ms McKie, and had gained the impression that he felt that she thought that she was better than him and that it was only a matter of time before she was promoted high in police ranks. Mr Kerr told the Inquiry that he had been asked to elaborate on rumours and gossip and he had no animosity towards Ms McKie.[77] I should record that the off-the-record comment as noted by the precognoscer amounts to nothing more than speculation on the part of Mr Kerr, and I have heard no evidence to support it.

67 Mr Kerr 18 June page 29
68 Mr Kerr 18 June page 30
69 Mr Kerr 18 June page 30
70 FI_0070 para 16 Inquiry Witness Statement of Sheriff Murphy, Sheriff Murphy 25 June pages 18ff
71 FI_0044 para 46 Inquiry Witness Statement of Mr Kerr
72 FI_0044 para 49 Inquiry Witness Statement of Mr Kerr
73 Mr Kerr 18 June page 33
74 See chapter 10 paras 35-36
75 CO_0345 pdf page 114
76 CO_2592 Original police investigation statement of Mr Kerr
77 Mr Kerr 18 June page 79

Enquiries on 12 January

14.45. A HOLMES-generated action for 12 January was for Mr Kinnaird to be re-interviewed to clarify the situation with the doors at the locus: "Show him [Mr Kinnaird] door keys and have him repeat his actions on entering house."[78] Ms McKie received an instruction or action from Mr McAllister to return to 43 Irvine Road with Mr Shields taking keys for the house in order to have Mr Kinnaird go through the act of unlocking the doors.[79] Mr Stevens said that Ms McKie collected the keys from him at 10:45[80] and the property record sheet for the keys in HOLMES showed that Ms McKie got them from the temporary production store at the police office at that time.[81]

14.46. Mr Shields did not agree with the instruction from Mr McAllister as although Mr Kinnaird was not a suspect, he was a TIE (trace, interview and eliminate) and Mr Shields thought that Mr Kinnaird should not be taken back to the scene before he had been eliminated from the investigation. He shared his concern with Mr Heath who rescinded the action.[82] The HOLMES record showed that the action was changed to "for referral" meaning that it was not to be carried out without further direction. The entry was marked "11.02" [83] although Mr McAllister explained that this would have been the time when the operator changed the status of the action on the system and not necessarily the time at which the decision was taken.[84]

14.47. Mr Stevens said that Ms McKie returned the keys to him after 15 minutes saying "I wish to hell he would make up his mind" which Mr Stevens took to be a reference to Mr Heath". [85] The return of the keys at 11.00 was noted in the property record.[86]

13 January

14.48. Mr Shields and Ms McKie were instructed on 13 January to trace, interview and eliminate the employees of the builders who had been involved in carrying out the improvements at 43 Irvine Road.[87] They had to find out where these individuals had been in the house at that time. This was made more difficult because they were not familiar with the layout of the house so Mr Shields asked Mr Heath for permission to visit the house following a discussion with Ms McKie. This request was refused by Mr Heath as the forensic team was still working there.[88]

The scene log as a source of evidence

14.49. There was an internal Strathclyde Police inquiry as to whether or not an officer on log-keeping duties at the locus had either permitted access to the locus or had not kept a proper watch, thereby affording Ms McKie access unrecorded. Mr Malcolm, in a report dated 1 April 1997 to the procurator fiscal Kilmarnock, said: "The log of

78 CO_1467 and Mr McAllister 16 June pages 6-7
79 FI_0080 para 80 Inquiry Witness Statement of Mr Shields
80 FI_0033 para 12 Inquiry Witness Statement of Mr Stevens
81 CO_1419 pdf page 2
82 FI_0080 para 20 Inquiry Witness Statement of Mr Shields
83 CO_1467
84 Mr McAllister 16 June pages 8-9
85 FI_0033 para 12 Inquiry Witness Statement of Mr Stevens
86 CO_3405 and CO_1419 pdf page 2
87 CO_2219 page 4 Mackay enquiry statement of Ms McKie and FI_0071 para 29 Inquiry Witness Statement of Ms McKie
88 FI_0071 paras 30-31 Inquiry Witness Statement of Ms McKie

events was maintained at the locus from 8 January to 28 January 1997 inclusive. It has been examined and for a variety of reasons is not the quality of document that it might be. Fifty police officers' statements have been taken and should be read in conjunction with the log."[89]

14.50. I did not consider it appropriate to take detailed fresh evidence about the log-keeping and control of the scene in general and have not therefore undertaken my own assessment of the whole log-keeping exercise at 43 Irvine Road. I did, however, hear some evidence about the matter, which confirmed that the log was incomplete.

14.51. Log-keepers were not part of the police investigation team. The day-to-day arrangements were for whichever uniformed officers were allocated to the task and their supervisor.[90] The Inquiry learned that the practice in more recent years has been to appoint a crime scene manager, and that procedures have changed.[91] For example under current practice there would be an outer cordon and an inner cordon with a log kept at each position. The log-keepers would no longer be stationed in a porch at a crime scene such as this.[92] In 1997 the task was generally allocated to less experienced officers[93] with insufficient training or instruction for the duty, and an absence of a standard procedure to follow.

14.52. Mr Kerr[94] said that he found copies of magazines, taken from the living room, lying on the log-keepers' table in the porch.[95] He told the Inquiry that when he saw the logs and heard that individuals had gone in and switched on the heating in the house he formed the opinion that they did not really understand what was expected of them.[96] He agreed[97] that the log-keeping was "an absolute shambles" a description put to him from a statement to the Inquiry by Ms Greaves, the procurator fiscal who prepared the Precognition in *HMA v McKie*.[98]

14.53. Mr Hunter said that on one occasion when he attended the house a log-keeper was not present.[99]

14.54. From such evidence the Inquiry has seen, the standard of the log-keeping in this instance does not seem to have been adequate. Access to the house was not always adequately controlled. In some cases the log does not record the arrival and departures of people who were present in the locus, an example being the presence of Mr Kerr on the afternoon of Saturday 11 January.[100]

14.55. The information about log-keeping shows that the log cannot, on its own, answer the question: was Ms McKie in the house? Various rumours have persisted over

89 CO_0998
90 FI_0013 paras 54-57 Inquiry Witness Statement of Mr Heath
91 See chapter 3 para 47
92 Mr McAllister 16 June pages 68-69 and Mr Hogg 17 June page 8, FI_0037 para 9ff Inquiry Witness Statement of Mr Thurley and Mr Kerr 17 June page 145ff
93 FI_0068 para 43 Inquiry Witness Statement of Mr McAllister
94 FI_0013 para 71 Inquiry Witness Statement of Mr Heath
95 Mr Kerr 18 June pages 43-44
96 Mr Kerr 18 June page 50
97 Mr Kerr 18 June page 51
98 See chapter 10
99 FI_0042 para 27 Inquiry Witness Statement of Mr Hunter
100 Para 35ff above

the years to the effect that Ms McKie did go beyond the porch. I have investigated them.

Rumours

14.56. Since his retirement, Mr Brown had carried out investigations on a voluntary basis on behalf of others. During his investigation into the death of Annie Davis[101] he met Marion Scott, a journalist on the Sunday Mail.[102] In early 2006 he and Ms Scott had a meeting with two fingerprint examiners from SCRO, Ms McBride and Mr Geddes, at Mr Brown's house.[103]

14.57. Mr Brown's interest was in the murder of Marion Ross and not in fingerprints as he had no expertise in that subject.[104] Ms Scott said in evidence to the Inquiry that Mr Brown told her that a friend of his at a bowling club (she had the impression that this was a retired police officer) had told him that in his opinion Ms McKie had been allowed into the murder house by a police officer who was on guard duty because he fancied her.[105] She told him that there had been a number of rumours going round for many years regarding this case and unless there was factual evidence or proof it was only rumour. When Mr Brown asked her what kind of rumours she told him that the rumours ranged from Ms McKie having been in the house, or not having been in the house but with someone planting her fingerprint through jealousy, to there being some kind of sexual liaison in the house or that she was a "murder ghoul" and that was why she was there.[106]

14.58. There were a number of differences between the evidence of Mr Brown and that of Ms Scott concerning for example who had made the first approach about having a meeting with the SCRO officers and who initiated the discussion about the rumours. Nothing of importance turns on this because the Inquiry was interested only in the nature of the rumours that were circulating and then investigating if there was any basis for them.

14.59. Ms Scott told the Inquiry that she was not aware of any evidence to support the rumours[107] and that she had said so to Mr Brown. Mr Brown referred in both his statement and in his oral evidence to the rumours that he had followed up insofar as he had found it possible to do so.

Mr McAllister

14.60. Mr Brown said that in 2008 he was in a shopping centre in East Kilbride when he was approached by a Mr McAllister, a retired detective superintendent.[108] He knew Mr McAllister who inquired how he was getting on with the McKie case. Mr McAllister said to him, "Do you think she was in the house?" Mr Brown said that when he replied "Yes" the response from Mr McAllister was "So does my son, he knows she was in the house." Mr Brown asked who his son was and was told

101 An 84 year old lady found dead in her home in Erskine, Scotland, in 1998.
102 Mr Brown 19 June pages 11-12
103 FI_0017 para 3 Inquiry Witness Statement of Mr Brown, Mr Brown 19 June page 14 and Ms Scott 23 June page 7
104 Mr Brown 19 June page 15
105 Ms Scott 23 June page 3
106 Ms Scott 23 June page 5
107 Ms Scott 23 June page 10
108 Mr Brown 19 June page 28

Detective Chief Superintendent McAllister of special branch.[109] They met again two weeks later by chance and Mr McAllister senior asked Mr Brown how he had got on with his son and he told him that he had not spoken to him yet. To this Mr McAllister replied "Well, if you have any problems let me know."[110]

14.61. In evidence to the Inquiry Mr McAllister said that he had spoken to his father within the previous few days and that his father's position was that no such conversation ever took place.[111] During his evidence Mr McAllister said that he had no evidence that Ms McKie was within the locus.

Mr McKinlay

14.62. In his statement Mr Brown said that he was informed by an anonymous source that the professional at Troon Golf Course in Ayrshire had been saying that he knew a police officer at Kilmarnock who had told him that he had all the answers.[112] Mr Brown travelled to Troon and visited the professional, Mr Gordon McKinlay, in his shop where he explained to him the nature of his enquires.[113] According to Mr Brown's account Mr McKinlay asked him for his telephone number and undertook to call this officer.[114] Mr Brown said that he called Mr McKinlay who confirmed that he had passed on Mr Brown's message to the officer.[115] Mr Brown said that he received no phone call either from Mr McKinlay or the officer in question.[116]

14.63. Mr McKinlay gave oral evidence to the Inquiry[117] and he recalled Mr Brown coming to his shop and asking him if he knew a police officer who was involved in the case involving Ms McKie. When Mr McKinlay told him that he did not, Mr Brown said that he had been talking to someone who said that he did. Mr McKinlay said that following this he asked Mr Brown to leave the shop and Mr Brown gave him his card and asked him to ring if he knew the name of a police officer who was involved. He told the Inquiry that he did not know any police officer who was involved in the case of Ms McKie or who worked at Kilmarnock.[118]

Mr Reid

14.64. In 2006 Mr Brown interviewed Mr Kerr Reid, a police officer who got in touch with him. Mr Brown said that Mr Reid told him that when he was on dock duty in Paisley with an officer who was stationed at Kilmarnock this officer said to him "that b**** will get us done; it was me that let her into the house." On being asked why he let her in he said that it was because he fancied her."[119]

14.65. Mr Reid, who has now retired, said in evidence to the Inquiry that in 1999 or possibly 2000 he was in the kitchen muster area for police officers at Paisley High

109 Mr Brown 19 June page 28. Mr McAllister's current rank is Detective Chief Superintendent – FI_0068 para 1 Inquiry Witness Statement of Mr McAllister.
110 Mr Brown 19 June page 29
111 Mr McAllister 16 June page 33
112 FI_0017 para 44 Inquiry Witness Statement of Mr Brown
113 FI_0017 para 45 Inquiry Witness Statement of Mr Brown
114 FI_0017 para 46 Inquiry Witness Statement of Mr Brown
115 FI_0017 para 45 Inquiry Witness Statement of Mr Brown
116 Mr Brown 19 June pages 68-69
117 Mr McKinlay 23 June page 14
118 Mr McKinlay 23 June pages 16-17
119 Mr Brown 19 June page 40

Court.[120] A male officer from U Division, which is Kilmarnock, who could have been under 30 years of age, told the other officers present "My neighbour let her into the house. I think he had a fancy for her."[121] It was explained that a "neighbour" in police circles refers to a person with whom one works. Mr Reid denied that he told Mr Brown that this officer said that he himself had let Ms McKie into the house.[122]

Mr Kerr

14.66. Mr Brown said in his statement "I did speak to a SOCO Officer, Officer Kerr, who confirmed that he heard PC Lees and Shirley McKie having a heated discussion in the porch of the locus. The SOCO said that Shirley McKie used the word 'contamination'. The SOCO was dismantling door handles at the time this was around 13 January 1997. I understand Shirley McKie was examined on this topic in court and denies that she used the word 'contamination' in conversation with PC Lees."[123]

14.67. Mr Kerr gave evidence that there was no heated discussion at the door.[124] Furthermore he said that he had never spoken to Mr Brown. He remembered receiving a telephone call from someone purporting to be Mr Brown who wanted to speak to him about the McKie case and he referred him to the legal services department.[125]

14.68. Mr Brown in his oral evidence accepted that he did not have any contact with Mr Kerr[126] and he said that he would never have referred to a detective constable as SOCO Kerr. Initially he claimed that this passage in his statement to the Inquiry gave him the distinct impression that it had been inserted and not by him, but he then accepted that they were his words and he agreed that he had made a mistake in signing his statement. He gave as his evidence "I am aware that a police officer, Detective Constable Kerr, stated that he heard PC Lees and Shirley McKie having a heated discussion in the porch of the locus. The Detective Constable said that Shirley McKie used the word 'contamination'."[127] He accepted that the reference to a SOCO officer overhearing the conversation came from him and he thought that the information had come from the transcript of the trial. I understood Mr Brown to be referring to a note taken of proceedings by a police observer, Mr Stewart Carle.[128] It is not a full transcript of the proceedings. That note does not record Mr Kerr as having said that Ms McKie used the word "contamination".

Mr Lees

14.69. Mr Lees was the log-keeper at 43 Irvine Road on 11 January. He was aware of rumours that he let Ms McKie into the house and denied that he did.[129]

14.70. In his signed statement to the Inquiry Mr Brown said that he was told that Mr Lees and Ms McKie had been seen arguing ferociously in the car park during the trial

120 Mr Reid 9 June page 124
121 Mr Reid 9 June page 126
122 Mr Reid 9 June page 128
123 FI_0017 para 46 Inquiry Witness Statement of Mr Brown
124 Mr Kerr 18 June page 65
125 Mr Kerr 18 June page 41
126 Mr Brown 19 June page 3
127 Mr Brown 19 June page 6
128 CO_0214 and FI_0014 Inquiry Witness Statement of Mr Carle
129 FI_0012 paras 29-30 Inquiry Witness Statement of Mr Lees

in *HMA v McKie*.[130] In his oral evidence he said that for "ferociously" should be read "heatedly".[131] He could not put a name on the person who told him but he suggested it might have been Mr Carle.[132]

14.71. There was no mention of such an incident in Mr Carle's statement to the Inquiry.[133] Mr Lees said he never had an argument with Ms McKie during her trial, he never spoke with her at all.[134] Ms McKie also said that she had no contact with Mr Lees during her trial.[135]

14.72. Mr Brown said that he made every effort to interview Mr Lees. He called at Stewarton Police Office, where Mr Lees was community officer for three and a half years prior to November 2007. In a telephone conversation with Mr Lees he made an appointment to see him in the following week. When he telephoned the section sergeant at the beginning of the next week he told him that after Mr Brown's telephone conversation Mr Lees had put down the telephone and gone sick and had not been seen since.[136]

14.73. Mr Lees agreed that he did have a conversation with Mr Brown but said that he did not walk out and he could not remember if he reported sick.[137] In his statement Mr Brown said that he spoke to Mr Lees after this who told him that he had taken advice from Superintendent Weir and that he did not wish to be interviewed.[138] Mr Lees confirmed in his evidence that he had taken advice from the superintendent and she told him that he did not have to speak to Mr Brown[139] and he followed this advice.

Miss McKay

14.74. Mr Brown was given the name of a fingerprint examiner at the SPSA by SCRO fingerprint experts. Mr Brown spoke to the examiner, Collette McKay, and she told him that when she was showing a police constable, Alistair Morgan, around the fingerprint bureau Mr Morgan told her that someone he worked with had allowed Ms McKie to enter the house.[140] Mr Brown interviewed Mr Morgan who disagreed with her interpretation of what he had said to her. Mr Brown said "Basically then you were just chatting her up, general conversation?" and he said "Yes."[141]

14.75. In her evidence to the Inquiry Miss McKay said that when she was showing Mr Morgan round she introduced the McKie case into the conversation out of interest to see how her office was now perceived, and he said that he worked with someone at Stewarton who said that he let Ms McKie into house. She reported the

130 FI_0017 para 32 Inquiry Witness Statement of Mr Brown
131 Mr Brown 19 June page 35
132 Mr Brown 19 June page 37
133 FI_0014 Inquiry Witness Statement of Mr Carle
134 Mr Lees 18 June pages 134-135
135 FI_0071 para 85 Inquiry Witness Statement of Ms McKie
136 Mr Brown 19 June page 48
137 Mr Lees 18 June page 137
138 FI_0017 para 39 Inquiry Witness Statement of Mr Brown
139 Mr Lees 18 June page 139
140 FI_0017 para 47 Inquiry Witness Statement of Mr Brown
141 Mr Brown 19 June page 81

conversation to a senior fingerprint examiner. After she had spoken about it to Mr Brown she was interviewed by one or two senior officers from Strathclyde Police.[142]

14.76. Mr Morgan told the Inquiry that his visit to the bureau had been in 2005. He had no recollection of saying what was attributed to him by Miss McKay.[143] He denied discussing the McKie case with her or telling Mr Brown that he had been trying to impress Miss McKay.[144] He said that police officers from Kilmarnock sometimes did duty at Stewarton[145] and when asked expressly he said that he knew Mr Lees but he was not a friend of his.[146] He did not know of any officer allowing Ms McKie entry to this locus, nor of any officer who claimed to have let her have entry.[147]

Mr Murphy

14.77. Another allegation referred to by Mr Brown[148] was that after Mr Lees had given evidence at the trial of Ms McKie the advocate depute, Mr Murphy, told police officers outside the court that Mr Lees had committed perjury and said "That's two that have committed perjury." Mr Murphy[149] told the Inquiry that he had no recollection of this and would be quite surprised if he had made such a remark. He could not understand why he would have been speaking to a group of police officers outside the court after Mr Lees had given evidence.[150]

14.78. It should be noted that Mr Carle's summary of the trial recorded Mr Murphy as having said in the course of his speech to the jury that the prosecution accepted that there was no other evidence placing Ms McKie where the print was found and that, if the prosecution case was correct, not only had Ms McKie lied but somebody else must also have lied by denying either letting her in or being absent from post and giving her an opportunity to enter the house.[151] It is more likely that that was the occasion on which Mr Murphy made the statement to which Mr Brown referred and read in context the allegation was contingent on the prosecution being correct about the fingerprint identification.

Police investigations

14.79. Some of the allegations raised by Mr Brown were investigated by Detective Chief Superintendent Ruaraidh Nicolson[152] and Detective Superintendent John Mitchell[153] in February and March 2007. Having first spoken to Mr Brown they interviewed Mr Reid who confirmed that in late 1999 or early 2000 he had a general discussion with a young police officer at Paisley High Court. He was unable to identify this officer by name and was not in a position to identify the individual who was alleged to have allowed Ms McKie to have access to the scene of the murder. Efforts to discover the identity of the officer through police files were unsuccessful as documents are only retained for the year in which they are created and then for five further years.

142 FI_0009 Inquiry Witness Statement of Ms McKay
143 Mr Brown 17 June page 136
144 Mr Morgan 17 June page 136
145 Mr Morgan 17 June page 138
146 Mr Morgan 17 June page 141
147 FI_0030 paras 5 and 6 Inquiry Witness Statement of Mr Morgan
148 Mr Brown 19 June page 75
149 Now Sheriff Murphy
150 Sheriff Murphy 25 June page 147
151 CO_0214 para 91.3
152 FI_0004 Inquiry Witness Statement of Mr Nicolson
153 FI_0001 Inquiry Witness Statement of Mr Mitchell

14.80. Mr Mitchell also interviewed Miss McKay and Mr Morgan who denied having had any discussion with Miss McKay about the McKie case. It appears that Mr Morgan had also been interviewed by a Strathclyde Police complaints and discipline team in December 2006 in relation to remarks he was said to have made to Miss McKay and no disciplinary action was taken.

Commentary

14.81. There is nothing in the evidence of Ms Scott to support the proposition that Ms McKie was within the house.

14.82. I accept that Mr McAllister had no evidence that Ms McKie was in the locus. If the Mr McAllister that Mr Brown spoke to was his father the conversation does not amount to evidence that she was in the house.

14.83. In the course of his evidence Mr Brown said that he did not believe that Ms McKie had engaged in sexual intercourse in the house. He said that his information that she was inside the house was based upon the suggestion that her fingerprint was found in the house. He agreed that apart from the fingerprint he had been unable to find any evidence from anyone who saw her in the house. He went on to say that he accepted that Mr Lees did not let her in but he (Mr Brown) thought that she just opened the door and said "I'll have a quick look."[154]

14.84. Mr Brown concluded his evidence by saying that there were several people who had said to him that they knew the name of the person who allowed her into the house but it was not possible to get any more from them for different reasons one of the main ones being fear for their jobs.[155]

14.85. A key question is whether Ms McKie entered the house before Y7 was found.

14.86. No witness to the Inquiry spoke to Ms McKie as having entered the locus beyond the porch and the Inquiry has found no evidence that she did so. There is no evidence that Ms McKie attended the locus on either of the occasions on 9 January or 12 January when she had in her possession for short periods the keys to the property. There is no evidence that Ms McKie went any further than the porch of the property when she and Mr Shields attended there on 9 January following their discussion with Mr Kinnaird.

14.87. So far as 11 January is concerned, I prefer Ms McKie's consistent account whereby she entered the porch to that of Mr Lees, whose account is that she did not step over the wooden threshold. It is possible that he adopted that approach to rationalise why he did not record her attendance in the log. Ms McKie's account is consistent with that of Mr Kerr, insofar as he recalled seeing Ms McKie in the porch and I have concluded that on this point of detail Mr Lees's recollection was not reliable. There is no evidence that she proceeded any further than the porch on 11 January.

14.88. Although Ms McKie put the time of her visit to collect the log on 11 January at around 17:45 the evidence as to timings is not sufficiently precise to lead me to

154 Mr Brown 19 June pages 112-113
155 Mr Brown 19 June page 148

draw any adverse conclusion from Mr Kerr finishing duty, according to the time sheet, at 17:15.

14.89. The position that Ms McKie has adopted and consistently maintained since 1997, even in the face of considerable pressure, is that she did not enter the house. She was well aware that she was not permitted to do so. Other officers say that they did not see her enter. Mr Shields, who spent a great deal of time with her, says that he did not see her enter.

14.90. The question as to whether or not Ms McKie entered the house has been also the subject of extensive preceding inquiry. So far as the Inquiry has discovered none of these inquiries has produced eye witness evidence of Ms McKie having been in the locus. In particular in the trial in *HMA v McKie* all the log-keepers gave sworn evidence that Ms McKie did not enter the locus. In essence, as the advocate depute at that trial explained, the only evidence that Ms McKie was in the house was mark Y7.[156]

14.91. An additional rumour mentioned by Mr Crowe in the course of his evidence[157] was a suggestion, possibly made during the trial in *HMA v Asbury* or around that time, that Ms McKie had entered the house to use the lavatory. Ms McKie was only at the house while on duty for very short periods of time and the police station to which she was attached was close to 43 Irvine Road. It is difficult to understand why she would have chosen to enter a house for this purpose with other officers present carrying out the examination. It can therefore be dismissed as being nothing more than conjecture based on an erroneous belief that she had been on some duty that had required her to be at the house for long periods of time.

14.92. The various lines of inquiry raised by Mr Brown have all been pursued as fully as possible and no evidence has emerged to support the allegation that Ms McKie entered 43 Irvine Road beyond the porch. Mr Brown's accounts of matters were not always at one with the accounts of the persons with whom he claimed to have spoken. In relation particularly to his initial account of having spoken to Mr Kerr, his evidence was incorrect, as he accepted in oral evidence. Taking at their highest Mr Brown's accounts of conversations with Mr McAllister senior, Mr McKinlay and Mr Reid, they amounted only to hearsay of hearsay to the effect that someone had claimed to have knowledge that Ms McKie was in the house and I cannot attach weight to them. The lines of inquiry taken up from Mr Brown's statement produced no eye witness who has claimed that he saw Ms McKie in the house.

14.93. The critical question is whether Ms McKie was in the house. Leaving aside, at this stage, the fingerprint evidence (which is discussed later in this Report) I found no evidence that Ms McKie was in the house.

156 See chapter 12 para 59
157 Sheriff Crowe 2 July pages 181-182

CHAPTER 15

THE TRIAL IN *HMA v McKIE*: MS McKIE'S EVIDENCE

The issue

15.1. Ms McKie gave evidence on 11 May 1999.[1] An aspect of Mr Murphy's cross-examination of Ms McKie focussed on whether any other experts apart from Mr Wertheim and Mr Grieve had examined Y7 for the defence.

15.2. The relevant part of the transcript[2] records Mr Murphy's questions and Ms McKie's answers as follows:

Q "Can you tell the ladies and gentlemen how many people were asked to look at the print Y7 for the Defence before Mr Wertheim?

A "I have no idea."

Q "Well, was it one, was it more than one?

A "You will need to ask my Counsel about that."

Q "Is this not a matter that you would have been anxious to know about?

A "Mr Findlay assured me he would do the job properly and to trust him and that is what I did."....

Q "Do you seriously not know whether the print was shown to anyone other than Mr Wertheim?"

A "I don't know who has examined the fingerprint."

Q "Do you know if anybody has?"

A "I don't know who has."

Q "Do you know if anybody has, regardless of their identity?"

A "I don't know. You would need to ask my solicitor that."...

Q "Well did you not ask your solicitors how things were progressing?"

A "Yes."

Q "And there was no discussion at any stage of other people looking at the fingerprint?"

A "Well there was discussion about, obviously the fingerprint, people looking at the fingerprint but they don't discuss with me day-to-day who, what and why."

Q "So you don't know whether or not anybody else looked at the print, is that your evidence?"

A "No I don't know."

15.3. The issue arises in particular in the context of the last question. "So you do not know whether or not anybody else looked at the print, is that your evidence?" The meaning of this is plain. Ms McKie's response was that she did not know whether anybody else looked at the print apart from Mr Wertheim.

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1 SG_0294 and CO_0214 sections 85 and 86

2 SG_0294 page 87ff. As in chapter 12, page references in the footnotes in this chapter are to the typed page numbers in the transcript which differ from the pdf page numbers in the electronic copies.

15.4. In this regard it has been alleged that Ms McKie gave false answers to Mr Murphy.[3]

Lack of criticism from others

15.5. Ms McKie noted that it had never been suggested to her by her counsel, her solicitors or anyone else after the case that she had been untruthful.[4]

15.6. Mr McKie also noted that the Lord Advocate and other relevant authorities had been informed of the allegation. They had taken no action.[5]

15.7. The Inquiry must reach its own conclusions on these matters, and the fact that other bodies or persons may have considered them is not of relevance.

Ms McKie's knowledge at the time of the trial

15.8. Ms McKie was aware, before she gave evidence, that Mr Swann had looked at Y7 and concluded that Y7 was made by her. That is consistent with the unequivocal evidence in her statement to the Mackay enquiry,[6] which Ms McKie generally adopted in her statement to the Inquiry.[7]

15.9. The answer to the last quoted question of Mr Murphy was, accordingly, wrong.

Suggested explanations

15.10. Both Ms McKie and Mr McKie put forward various explanations for the response to Mr Murphy.

Ms McKie's medical position

15.11. Ms McKie explained that during the trial and in the lead up to the trial she was receiving medical help for stress and depression and at times felt suicidal.[8]

15.12. Nevertheless Ms McKie decided to give evidence at the trial although she was under no obligation to do so. She was under an obligation to tell the truth so this does not provide an explanation for her response.

Ms McKie's lack of involvement in preparation

15.13. Ms McKie said that due to the state of her health she had limited involvement in the preparation of her defence and, for example, was unaware of the number of experts consulted by Mr McKie. She was even unaware that the mark had been shown to Mr Grieve.[9] Mr McKie explained that he had been mandated to act on Ms McKie's behalf in all aspects of the case[10] and that Ms McKie was largely unaware of what action had been taken in respect of experts other than Mr Swann and Mr Wertheim, and even with them her knowledge was extremely limited.[11]

3 FI_0149 para 16 Inquiry Witness Statement of Mr Swann
4 FI_0071 pdf page 18 Inquiry Witness Statement of Ms McKie
5 FI_0181 para 96 Inquiry Witness Statement (Part 1) of Mr McKie
6 CO_2219 pdf pages 16-17 Mackay enquiry statement of Ms McKie
7 FI_0071 paras 6-8 Inquiry Witness Statement of Ms McKie
8 FI_0071 pdf pages 17-18 Inquiry Witness Statement of Ms McKie
9 FI_0071 pdf pages 17-18 Inquiry Witness Statement of Ms McKie
10 FI_0181 para 96b Inquiry Witness Statement (Part 1) of Mr McKie
11 FI_0181 para 96c Inquiry Witness Statement (Part 1) of Mr McKie

15.14. It is accepted that Ms McKie was unaware of many aspects of preparation for her trial, including the number of people who examined Y7. This provides a satisfactory explanation for her response to some of Mr Murphy's questions but it does not explain her evidence that she did not know if anybody had examined the print because she knew that at least Mr Swann had done so.

Confusing nature of the questions

15.15. Mr McKie suggested that Ms McKie was confused about the line of questioning by Mr Murphy, in that she thought it was about the number of experts who had examined the mark.[12]

15.16. It has been accepted that she did not know how many experts had looked at the mark. Nonetheless, Mr Murphy's questions were clear and he asked twice if she knew of anybody else (i.e. other than Mr Wertheim). It is difficult to see how Ms McKie could have been confused.

Lack of reference to Mr Swann by name by Mr Murphy and Mr Findlay

15.17. Ms McKie said that she was unclear why Mr Murphy did not refer to Mr Swann by name. She added that the fact that Mr Swann was not referred to by Mr Murphy (or Mr Findlay) led her to think that something else was being referred to. If Mr Murphy had raised Mr Swann she would have been obliged to discuss this in evidence.[13] She stated that she could only presume that Mr Murphy knew she had told the truth, otherwise he would have raised it in evidence. Mr McKie's interpretation of the same point was that Ms McKie "effectively found herself caught up in a tactical battle in which, for their own reasons, they (Mr Murphy and Mr Findlay) did not wish to mention Mr Swann's name."[14]

15.18. It was most unlikely that an experienced defence counsel such as Mr Findlay would have referred to Mr Swann in these circumstances. He was under no obligation to bring out damaging evidence; the burden of proof was on the Crown. The mention of his name could only have damaged the defence case, as Mr Swann agreed with SCRO that Y7 was made by Ms McKie.

15.19. The extent of Mr Murphy's knowledge of Mr Swann does require discussion when considering the significance of the answers given by Ms McKie but whether or not Mr Murphy was aware of Mr Swann is of limited relevance to the issue whether Ms McKie answered Mr Murphy's questions correctly. Mr Murphy's questions were plain and easily understood. The failure to name Mr Swann could not have misled Ms McKie when the questions were directed to knowledge of anybody regardless of identity.

Instructions from or coaching by Mr Findlay

15.20. Ms McKie said that she had been told to refer all matters relating to the instruction of experts to Mr Findlay and that is what she sought to do.[15] Mr McKie said that Ms McKie was under express instructions from Mr Findlay to refer any questions regarding experts to him. In particular, Mr McKie stated that at some point shortly before the trial Mr McKie and Ms McKie met with Mr Findlay. At that meeting Mr

12 FI_0181 para 96b Inquiry Witness Statement (Part 1) of Mr McKie
13 FI_0071 pdf pages 17-18 Inquiry Witness Statement of Ms McKie
14 FI_0181 para 96a Inquiry Witness Statement (Part 1) of Mr McKie
15 FI_0071 pdf pages 17-18 Inquiry Witness Statement of Ms McKie

Findlay "instructed that when being cross-examined on matters related to Mr Swann and the other fingerprint experts she was to refer such matters back to him."[16] He also highlighted a passage in Mr Findlay's re-examination of Ms McKie in which, Mr McKie said, Mr Findlay underlined that instruction.[17]

15.21. Mr Findlay provided a statement to the Inquiry on the basis that it was as accurate as his limited recollection would allow. He had, at best, a very vague recollection of his involvement in the case.[18] Mr Findlay said that he met with Mr McKie on one occasion. Mr Findlay asked Mr McKie to leave the meeting. He said it was a fairly acrimonious meeting because Mr McKie wanted to take part in preparations for the trial. Mr Findlay made it plain that Mr McKie would have no part in his preparations.[19] On this basis it is most doubtful that Mr McKie attended the meeting at which Mr Findlay is alleged to have given this advice and therefore Mr McKie's account in this regard is of questionable reliability.

15.22. Mr Findlay said that he did not coach Ms McKie in any way and that coaching would be counter-productive.[20]

15.23. Mr Findlay told the Inquiry about the general advice he would give any witness. He would advise a witness to speak slowly and dress comfortably. He would tell witnesses that if they did not understand a question they should say so. He would advise a witness not to guess or speculate. He would advise a witness not to answer questions which were not within their knowledge. He would advise witnesses to listen to questions carefully and answer questions truthfully. He had no doubt he would have given Ms McKie all or some of such advice.[21]

15.24. Mr Findlay said that he may well have advised her that if asked about the preparations for the trial she should refer such matters to him. This, he explained, was simply a variation of the advice set out above.[22] This advice was doubtless provided on the basis that it was Mr Findlay's practice not to go into the specifics of preparation for trial with the clients or witnesses.[23] It would follow from that practice that Mr Findlay's clients would not know a great deal about his preparations and that Mr Findlay's advice to refer such matters to him should be viewed in this context. This is confirmed where, in re-examination of Ms McKie at her trial, Mr Findlay asked her "…you were also told that what went on in the preparation of the case was not your concern. We would deal with that because your job would be to come into this Court and simply to give evidence and not to worry yourself or be influenced by anything else that went on?" and Ms McKie replied "That is correct."[24]

15.25. As to the suggestion that he advised Ms McKie that if asked about the defence experts she should refer the matter to him, he did not recall such a conversation. He had no recollection of the specifics of the conversation with Ms McKie.

16 FI_0181 para 69 Inquiry Witness Statement (Part 1)of Mr McKie
17 FI_0181 paras 96d,120-121 Inquiry Witness Statement (Part 1) of Mr McKie
18 FI_0200 para 3 Inquiry Witness Statement of Mr Findlay
19 FI_0200 paras 33-35 Inquiry Witness Statement of Mr Findlay
20 FI_0200 para 19 Inquiry Witness Statement of Mr Findlay
21 FI_0200 paras 16-27 Inquiry Witness Statement of Mr Findlay
22 FI_0200 para 27 Inquiry Witness Statement of Mr Findlay
23 FI_0200 para 9 Inquiry Witness Statement of Mr Findlay
24 SG_0531 page 121

15.26. He said that if a witness asked him what to say if asked about a specific matter within the knowledge of the witness then he would tell the witness that they should answer truthfully and within the limits of the witness's knowledge. He said that if Ms McKie had contacted Mr Wertheim herself, and she was asked about how she came to be in touch with Mr Wertheim he would tell her that she should answer such questions truthfully and tell the court what she had done to contact him.[25]

15.27. There is nothing in Mr Findlay's account that suggests that he advised Ms McKie to answer a question to which she knew the answer in a less than candid and correct way. It is inherently improbable that Mr Findlay would have done so. In particular there is no evidence, apart from that of Mr McKie and Ms McKie, that Mr Findlay "instructed that when being cross-examined on matters related to Mr Swann and the other fingerprint experts she was to refer such matters back to him." As noted in this regard Mr McKie's evidence is of doubtful reliability because he may not have been at the consultation.

15.28. The question that then arises is whether any of Mr Findlay's advice could have inadvertently led Ms McKie to answer Mr Murphy's question in the way that she did. This must be viewed in the wider context. Ms McKie narrated her career in her statement to Mr Mackay's enquiry,[26] which she adopted in her statement to the Inquiry. She was an experienced and able police officer of much promise. It is reasonable to assume that she was well aware of the requirements imposed upon those giving evidence in court, which is to tell the whole truth. In these circumstances it is unlikely that she was inadvertently misled by anything Mr Findlay said. There is no reason to suppose that Ms McKie did not understand her duty as a witness.

Conclusions

Allegation that Mr Findlay coached Ms McKie

15.29. It has been alleged that Mr Findlay coached Ms McKie as to how she should answer if the issue of Mr Swann's evidence was raised during the trial.[27]

15.30. Mr Findlay rejected allegations that he coached Ms McKie. He set out the type of advice he would give to witnesses. None of this can be interpreted as coaching. As Mr Findlay explained, coaching a witness carries risks, since if a witness had been coached in any way it would become immediately obvious to a jury.[28]

15.31. There is no proper foundation to any allegations that Mr Findlay coached Ms McKie, and I find that Mr Findlay did not do so.

Allegation that Mr Findlay instructed Ms McKie to refer certain matters to him

15.32. It is probable that Mr Findlay did advise Ms McKie that if she was asked about the preparations for her trial she should refer this to him. That was proper advice insofar as the information was outwith her knowledge. It does not provide an excuse for withholding information that was within her knowledge.

25 FI_0200 para 30 Inquiry Witness Statement of Mr Findlay
26 CO_2219 Mackay enquiry statement of Ms McKie
27 FI_0149 pdf page 44 Inquiry Witness Statement of Mr Swann
28 FI_0200 para 20 Inquiry Witness Statement of Mr Findlay

15.33. I find that Mr Findlay did not encourage or in any way advise Ms McKie to give evidence that was untrue or not the whole truth.

Criticism

15.34. Ms McKie was aware of Mr Swann's involvement. Mr Murphy's questions were clear. When asked "Do you know if anybody has?" Ms McKie responded "I do not know who has." When asked: "So you do not know whether or not anybody else looked at the print, is that your evidence?" Ms McKie's answer was "No I do not know." Those answers were not correct. The only frank response to these questions would have been to answer, at least, that she did know of someone. Where that answer might have led, whether or not she also volunteered the name of Mr Swann as the person concerned, is a separate matter.

15.35. Ms McKie is criticised for answering Mr Murphy's question in a manner that was wrong.

Significance

15.36. Mr Swann argued that if, in response to those questions, Ms McKie had admitted his involvement and also admitted that he had identified Y7 as her left thumb print she would have been convicted of perjury.[29] That conclusion proceeds on a series of contentious assumptions that must be considered. Apart from anything else, it assumes that a correct answer to the restricted question asked by Mr Murphy (had anybody else, other than Mr Wertheim, examined the mark for the defence) would have led ultimately to disclosure of the conclusion reached by Mr Swann. It also assumes that that conclusion would have been accepted by the jury.

15.37. In this context it is pertinent to note that Mr Murphy did ask a similar question in his cross-examination of Mr Wertheim and received an entirely correct reply from Mr Wertheim:

> "… are you aware of whether or not you were the first person asked to carry out the exercise that you were asked to carry out? – I am aware that there was another examiner who reviewed the case prior to me."[30]

Mr Murphy did not pursue that answer and immediately passed on to other matters. Mr Murphy asked neither the name of that examiner nor what conclusion that examiner had reached. It is readily understandable that Mr Murphy did not put any such question to Mr Wertheim. Disclosure only of the name of the examiner would have added nothing to the Crown case; and any question to Mr Wertheim seeking to go further and to obtain disclosure of the conclusion reached by the previous examiner would have been objectionable on the grounds that it sought to introduce hearsay evidence.

15.38. One can only speculate whether Mr Murphy would have asked any follow-up questions had Ms McKie answered the questions correctly. Even if he had asked follow-up questions there is every reason to doubt the assumption that that would have culminated in Mr Swann's opinion on the identification of Y7 coming out in

29 FI_0149 pdf page 44 Inquiry Witness Statement of Mr Swann
30 SG_0530 pages 291-292 - trial transcript 12 May 1999

evidence. On the contrary, a question to Ms McKie asking what conclusion Mr Swann had reached would have been objectionable on the grounds of hearsay. In order to put Mr Swann's opinion to the jury the Crown would have had to have led him as a witness; but by the time that Ms McKie was giving evidence it would have been too late for the Crown to have done so, the Crown having closed its case.

15.39. There are tight controls on the ability of prosecution and defence to lead additional evidence after the closure of their respective cases. Section 269 of the Criminal Procedure (Scotland) Act 1995, which allows the prosecution to lead additional evidence to contradict evidence given by any defence witness, is of doubtful relevance to the present issue because merely to establish that Ms McKie did know of the involvement of Mr Swann would not have advanced the Crown case. The Crown would have had to introduce Mr Swann as a late witness. The statutory provision relating to that scenario is section 268 of the 1995 Act which allows the judge to permit the leading of additional evidence if the criteria in sub-section (2) can be satisfied:

> "Permission shall only be granted under subsection (1) above where the judge—
>
> (a) considers that the additional evidence is prima facie material; and
>
> (b) accepts that at the commencement of the trial either—
>
> (i) the additional evidence was not available and could not reasonably have been made available; or
>
> (ii) the materiality of such additional evidence could not reasonably have been foreseen by the party."

15.40. The two alternatives under sub-section (2)(b) focus attention on the prosecution's state of knowledge prior to the trial. That is a matter that the Inquiry has considered.

15.41. Close attention was paid to the stage at which Mr Murphy personally learned of Mr Swann's involvement but that is not the only consideration. It is relevant to consider knowledge on the part of the prosecution as a whole. The evidence available to the Inquiry is consistent with the proposition that some information of Mr Swann's involvement may have been available to various people prior to the trial. It has proved difficult to be precise about who knew what at specific dates, which is hardly surprising given that witnesses were being asked to recall detail dating back more than ten years. Nonetheless, it was the evidence of Mrs Greaves that at some point prior to the trial she had learned from a remark made by Ms McCracken of Levy & McRae that Mr Swann had confirmed the SCRO identification. By this stage Mrs Greaves was no longer directly involved in the case[31] and, unaware of its possible relevance, she did not pass this information on to Mr Murphy.[32]

31 See chapter 11 para 99
32 Mrs Greaves 1 July pages 112-113 (and see also pages 100-102 and 119-120)

15.42. Mr Murphy could not remember precisely when he became aware of Mr Swann's involvement.[33] He said that he was not aware of Mr Swann's involvement *before* the trial but he was "fairly certain" that he knew of Mr Swann's involvement by the *end* of the trial. As to his state of knowledge when he was questioning Ms McKie, he said:

> "… I do not think I knew of Peter Swann's involvement, or had no way of verifying it, at the time I was cross-examining Ms McKie, as I have couched my questions to her on that point in general terms."[34]

That includes two alternatives, one of which is that Mr Murphy had some possible awareness of Mr Swann but had not had the relevant facts verified to his satisfaction.

15.43. Mr Murphy's recollection was that when he spoke to Mr MacPherson and Mr Stewart before the trial they indicated that there was a rumour that the defence had got someone else to look at the mark, but that they did not know who it was. This was probably during the second meeting at the High Court. He was fairly sure that he asked them to let him know if the identity of the examiner came to light.[35] Mr Stewart's evidence to the Inquiry implied that the identity of Mr Swann may have become known prior to the trial because he expressed surprise that Mr Swann was not called as a witness: "The AD seemed to think it was not the way prosecutions were run by calling last minute witnesses."[36] In any event, at some stage Mr Murphy came into possession of a note[37] which listed three names of people SCRO thought potentially[38] had looked at the mark: Peter Swann; Mike Heron; and Malcolm Johnson. The first two names were not in Mr Murphy's handwriting.[39]

15.44. It is not clear when that note was given to Mr Murphy but he must have had some knowledge of Mr Swann by 7 May 1999 because he referred to him in his questioning of Mr MacPherson in court that day. The transcript recorded Mr MacPherson explaining that independent fingerprint examiners act as defence experts. Mr Murphy asked Mr MacPherson "Have you heard of a Mr Swann doing such work in Scotland." Mr MacPherson replied "yes."[40] Mr Murphy was unclear whether (a) he was only aware at that stage that Mr Swann carried out this type of work, as opposed to knowing that he had been involved specifically in assisting Ms McKie[41] or (b) he may have been aware that Mr Swann had possibly been involved, but he had no confirmation of this fact.[42]

15.45. There is mention of Mr Swann in the minute of a meeting after the trial that Mr Murphy attended at SCRO on 20 May 1999:[43]

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33 AJ_0002
34 FI_0070 para 28 Inquiry Witness Statement of Sheriff Murphy
35 Sheriff Murphy 25 June page 104
36 FI_0036 para 268 Inquiry Witness Statement of Mr Stewart
37 AJ_0001
38 Sheriff Murphy 25 June page 114
39 Sheriff Murphy 25 June pages 105-106
40 SG_0529 pages 61-62
41 Sheriff Murphy 25 June page 113
42 Sheriff Murphy 25 June page 114
43 CO_0034

> "Mr Murphy confirmed that an independent fingerprint expert, PETER SWANN, had looked at the evidence and had agreed with the findings of the SCRO experts.
>
> Mr Murphy had made contact with Mr Swann, who confirmed that his findings were similar to SCRO's but he was unable to trace another two independent experts who had reportedly reached similar findings. This additional evidence was only noted after the trial had commenced and, therefore, it was not possible to introduce an additional witness at such a late stage.
>
> Mr Murphy had put it to Miss McKie that she knew of other experts having examined the print but she denied this. Therefore, an attempt to bring in Mr Swann through other means also proved impossible. Mr Murphy added that he now believes that McKie [sic] did not have such knowledge."

15.46. Mr Murphy said that the minute was significantly inaccurate in that he had never as far as he knew spoken to Mr Swann and he did not understand what the reference to the other two experts was.[44] It must have been that there had been some contact on the part of the prosecution with Mr Swann but Mr Murphy did not know when this was or who made the contact.[45]

15.47. The explanation that another member of the prosecution team, and not Mr Murphy, had been in contact with Mr Swann is consistent with Mr Swann's evidence. He said that at some point someone from COPFS made contact with him.[46] Though he could not be more specific because he was not notified of the date of the trial, he suspected that the contact was before or during the trial. An unnamed procurator fiscal from the Glasgow office phoned him and asked a series of yes/no questions which Mr Swann answered only when the fiscal assured him of the legality of doing so. As far as Mr Swann could recall the questions asked him whether he had been instructed in the McKie case, if he had examined the mark and prepared and submitted a report. There was no mention of him being asked what conclusion he had reached.

15.48. After Mr Murphy gave evidence at the Inquiry hearing Crown Office made available to the Inquiry a note[47] that Mr Murphy wrote on 3 June 1999 and it was sent to him for comment.[48] Access to the contemporaneous note did not assist Mr Murphy's recollection of the sequence of events[49] but one passage in it is of interest:

> "Before trial I received information that the defence had earlier had the print examined by other experts who had confirmed the SCRO identification. I asked that this be investigated. When the trial began the position was nothing more than that SCRO officers had heard gossip that this had happened and there was no way of confirming who the experts had been. One name was confirmed some time after the trial had started, by which time *it was too late to cite the person concerned.* I cross-examined Shirley McKie about this

44 FI_0070 para 33 Inquiry Witness Statement of Sheriff Murphy
45 FI_0070 para 35 Inquiry Witness Statement of Sheriff Murphy
46 FI_0149 pdf page 28 Inquiry Witness Statement of Mr Swann
47 CO_4416
48 FI_0155
49 AJ_0002

> in an effort to set up rebuttal admission of the evidence, but her position was that she had not been kept informed of the various steps taken by her representatives and that she was unaware that this had been done." (Emphasis added)

15.49. It is not readily apparent what was meant by "an effort to set up rebuttal admission of the evidence." Nonetheless, it is of interest that Mr Murphy's assessment was that by the time that he received confirmation of the name it would have been too late to cite the person concerned. All the information available to the Inquiry tends to confirm that that assessment was correct.[50] At whatever point Mr Swann's name was confirmed, it was too late to lead him as a witness at the trial.

15.50. In the circumstances I conclude that it is highly unlikely that a correct answer by Ms McKie to Mr Murphy's questions about her knowledge of the involvement of examiners other than Mr Wertheim would have had any bearing on the outcome of the trial. Even if she had gone as far as naming Mr Swann, the defence could have objected on the ground of hearsay to any question being put to Ms McKie about his conclusion on Y7 and the prosecution could not at that late stage have introduced Mr Swann as a witness at the trial.

15.51. I do not consider that the fact that I have found that Ms McKie was less than accurate in the course of her trial as to the involvement of Mr Swann should necessarily lead me to approach with scepticism her earlier and consistent denial that she entered the house in Irvine Road beyond the porch area.

50 See para 39ff above

CHAPTER 16

EVENTS AFTER THE TRIAL IN *HMA v McKIE* – MEETING AT TULLIALLAN

Introduction

16.1. This chapter considers issues concerning the meeting of experts at Tulliallan in August 2000.

16.2. The meeting was minuted[1] and those minutes should be read together with Mr Mackenzie's comments on them in his report of 29 August 2000.[2]

The purpose of the meeting

16.3. It appears that in advance of the meeting there were different ideas as to its purpose.

16.4. One of ACPOS's aims in establishing its Presidential Review Group (APRG) had been to seek an explanation for the difference in opinions between the SCRO experts and those consulted by Mr Taylor[3] (including Mr Zeelenberg from the Netherlands and Mr Rudrud from Norway) and the original remit of Mr Mackay had been "in particular" to investigate this.[4] Notes of a meeting on Monday 10 July[5] recorded that ACPOS was keen that there be an early meeting involving the Norwegian and Dutch experts and the SCRO officers "to see if matters could be resolved between them".[6]

16.5. Mr Mackenzie saw the Tulliallan meeting as part of the APRG process,[7] as a facilitated meeting to examine the difference of opinion between the experts. He thought he was going along to give his opinion on Y7[8] and did not think that the purpose of the meeting was for others to try to persuade him to change his mind. Such an objective would have been unacceptable to him.

16.6. Another view was that the objective was to persuade the SCRO officers that they were wrong. Mr Zeelenberg said that at an earlier meeting with HMICS,[9] he suggested that the best way forward would be if SCRO acknowledged their mistake and in order to achieve that he was prepared to have an informal session to discuss the prints. He envisaged a relaxed, expert to expert, "feet on table" atmosphere.[10]

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1 CO_0050
2 CO_0063
3 CO_1633
4 See chapter 13 para 53
5 A meeting between Mr Crowe, Mr Gilchrist, Mr Mackay and Mr Scott Robertson, (a Deputy Chief Superintendent from Tayside Police who was assisting Mr Mackay) to discuss the way forward: CO_1451 (which Mr Gilchrist stated appeared to be his note of the 10 July meeting), CO_1509 (a police note) and FI_0048 para 15 Inquiry Witness Statement of Sheriff Crowe.
6 CO_1451
7 FI_0046 para 199 Inquiry Witness Statement of Mr Mackenzie
8 Mr Mackenzie 2 October page 75
9 Which it is assumed is the meeting on 16 June 2000 mentioned in chapter 13 para 42.
10 Mr Zeelenberg 8 October pages 71-73 and FI_0115 paras 33, 36 and 37 Inquiry Witness Statement of Mr Zeelenberg

16.7. At the time when the meeting was first envisaged there was no allegation of wrongdoing[11] but by the time that it took place not only was there an active criminal investigation but also the four SCRO examiners who had signed the joint reports had been suspended. Mr Gilchrist, the procurator fiscal responsible for the criminal investigation, attended the meeting as an observer as did Mr Mackay and his deputy, Mr Robertson. The Crown Office intention was that Mr Mackay take statements from the foreign experts and Mr Mackenzie and Mr Dunbar and then interview the participants after the meeting "to ascertain if their views have in any way changed following upon the meeting".[12] The attendees also included union legal representatives on behalf of the SCRO staff members.

16.8. Mr Dunbar said they had been invited to the meeting via Mr Bell to participate in a facilitated discussion to see if any common ground could be found. He described it however as a pressurised situation against a background of four officers having been suspended. When he and Mr Mackenzie arrived at Tulliallan they were put into separate rooms about ten minutes before the presentation and statements were taken from them by police officers.[13]

16.9. For his part, Mr Zeelenberg said that, when he arrived at Tulliallan, he was surprised to find the procurator fiscal and lawyers from the trade union in attendance and to be told that there were going to be presentations rather than an informal discussion. This was not what he had expected. Looking back on it he thought that he was not well informed and fully aware of the gravity of the situation. He became aware that official investigations had been started looking into potential misconduct by the SCRO staff and that staff had been suspended. He was not aware of the full background. He appreciated in hindsight that the point of no return had already been reached.[14]

16.10. The opening comments of the facilitator, Dr Bramley,[15] are to be seen in that context. He is recorded as indicating that he understood that the purpose was to reach a consensus in the wider interests of fingerprinting because as long as there was a difference in the interpretation of the fingerprint identification the robustness and reliability of fingerprint evidence would be brought into question. That said, he acknowledged that it would not be easy to reach a consensus and that it would be understandable that SCRO might feel somewhat defensive under the circumstances and might also feel a need to be loyal to their colleagues. He asked those attending to keep an open mind and consider the strengths and weaknesses of the arguments put forward professionally and objectively.[16]

16.11. Mr Gilchrist said that the hope was for reconciliation and an understanding of how the differences had arisen but that the facilitated discussion failed to resolve the conflicts between the two camps.[17]

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11 FI_0050 para 71 Inquiry Witness Statement of Sir William Rae
12 CO_0018
13 FI_0053 paras 191, 195 Inquiry Witness Statement of Mr Dunbar
14 Mr Zeelenberg 8 October pages 72-75 and FI_0115 paras 35, 38 and 39 Inquiry Witness Statement of Mr Zeelenberg
15 Chief Scientist, Forensic Science Service
16 CO_0050
17 Mr Gilchrist 24 June page 137

The non-attendance of the suspended officers

16.12. Mr Mackenzie was critical of the fact that the officers under suspension were not allowed to attend the meeting.[18]

16.13. The decision that they should not attend was taken before they were suspended and was a direct consequence of Mr Gilchrist's commission to investigate allegations of criminality involving these four officers.[19] Mr Crowe explained that Mr MacPherson, Mr Stewart, Mr McKenna and Ms McBride were regarded as suspects and it was inappropriate for them to come to the meeting and either "be lulled into a false sense of security" or incriminate themselves.[20]

The presentations at the meeting

16.14. The Inquiry was provided with an ACPOS folder of documents from the meeting.[21] The agenda indicated presentations in the morning and a facilitated discussion in the afternoon.

16.15. Mr Mackenzie and Mr Dunbar's joint presentation on Y7 was essentially the work of Mr Mackenzie[22] in the booklet entitled 'The McKie case revisited',[23] supplemented by photographic enlargements and a PowerPoint presentation.[24]

16.16. Mr Gilchrist noted in his report that to the laymen present the SCRO presentation was persuasive but became less convincing when challenged by Mr Rudrud and Mr Zeelenberg.[25]

16.17. Mr Rudrud and Mr Zeelenberg also made a joint presentation that was spoken to by Mr Zeelenberg.

16.18. The minutes record that there was a facilitated discussion. The discussion was not concluded because there had been an exchange of new material (including an image of Y7 taken by Mr Kent[26]) and there was to be an opportunity to study that material and submit comments within the following two weeks.[27]

16.19. Mr Gilchrist said the meeting terminated prematurely because no progress was being made.[28] The issue is whether there was more to it than that.

Allegations of threats

16.20. Mr Dunbar and Mr Mackenzie alleged that Mr Zeelenberg made threats against them. There is no suggestion that Mr Rudrud engaged in any of the relevant conversations.[29]

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18 FI_0046 paras 200-203 Inquiry Witness Statement of Mr Mackenzie
19 CO_0018
20 FI_0048 para 13 Inquiry Witness Statement of Sheriff Crowe
21 CO_0046-CO_0065
22 FI_0053 para 192 Inquiry Witness Statement of Mr Dunbar
23 CO_0059 (also referred to as SG_0282 e.g. in Mr Mackenzie's Inquiry Witness Statement)
24 FI_0046 para 205 Inquiry Witness Statement of Mr Mackenzie
25 CO_0003 page 25
26 CO_0061
27 CO_0381
28 Mr Gilchrist 24 June pages 53-54
29 FI_0046 para 229 Inquiry Witness Statement of Mr Mackenzie

16.21. Mr Mackenzie alleged that, during a break at Tulliallan, Mr Zeelenberg attempted to coerce him to change his opinion with veiled threats, which effectively brought the meeting to a close. The suggestion was that Mr Zeelenberg said "I know I should not be saying this to you Robert, you have to accept that this print was not made by Ms McKie. I implore you, do it now, I assure you that you will be applauded and highly respected in the fingerprint community if you accept that you were wrong.... Do you realise what is about to happen? ...Think about your future over the next twenty years, think about your families, but you have only got fourteen days to do something about it."[30] Following this Mr Mackenzie spoke to Dr Bramley and told him there was not going to be any further purpose in continuing the meeting and it terminated shortly thereafter. The reason for seeking a termination was not given to Dr Bramley.[31]

16.22. During the Inquiry hearings Mr Mackenzie's recollection of the conversation with Mr Zeelenberg was on these lines: Mr Zeelenberg said: "Think of your families. Think of the next [I think it was] ten years. Do you know what is about to happen to you?" Of course the answer was, "What are you saying?" And he said: "I know", this is when his tone changed and he said: "You have two weeks to change your mind." Mr Mackenzie added he still did not understand this reference to two weeks[32] but it may be that this referred to the two week period allowed following the meeting to study new material and to submit further comment.

16.23. Mr Dunbar was present during the conversation at Tulliallan. He could not remember his exact words but stated that Mr Zeelenberg asked them to think about their futures professionally and personally and consider changing their minds.[33] He thought that Mr Zeelenberg was making a threat and that they were being pressurised to change their opinions.[34]

16.24. Within a couple of days of the meeting at Tulliallan, Mr Dunbar took a call from Mr Zeelenberg in Mr Mackenzie's absence. According to Mr Dunbar, Mr Zeelenberg said that he was not particularly pleased with the presentation that SCRO had given and accused them of trying to deceive the fingerprint community and said that he would call foul if SCRO continued with its stance.[35] This was repeated at Mr Dunbar's request so that he could note it and he passed it on to Mr Mackenzie and Mr Bell. Mr Scott Robertson of the Mackay enquiry was on the telephone with Mr Bell when the conversation with Mr Zeelenberg was reported and he apologised to Mr Bell on Mr Zeelenberg's behalf because what he had said was inappropriate.[36]

16.25. Mr Zeelenberg's position is that the allegation that he threatened Mr Mackenzie or Mr Dunbar is wrong. He considered himself on friendly terms with them.[37] However, he accepted that he made comments to Mr Dunbar and Mr Mackenzie consistent with their accounts. He indicated that he said to Mr Mackenzie, "Please, Robert, reverse yourself. You know what is going to happen. Everything is at stake, maybe

30 FI_0046 paras 222-223 Inquiry Witness Statement of Mr Mackenzie
31 FI_0046 para 225 Inquiry Witness Statement of Mr Mackenzie
32 Mr Mackenzie 2 October pages 72-76
33 FI_0053 paras 204-205 Inquiry Witness Statement of Mr Dunbar
34 Mr Dunbar 6 October page 165
35 Mr Dunbar 6 October pages 166-167 and FI_0053 paras 212-213 Inquiry Witness Statement of Mr Dunbar
36 Mr Dunbar 6 October pages 166-167
37 FI_0115 para 54 Inquiry Witness Statement of Mr Zeelenberg

your health, your family, everything…everything is at stake", and "Robert" replied to the effect something like, "Do you not think that this has gone through my head the last month."[38] He indicated that when he spoke to Mr Dunbar he said that if the presentation used by SCRO at the facilitated meeting was to be used to convince people of authority that the SCRO opinion was correct it would be the closest to malpractice he had seen.[39] On any view this was a stark explanation of Mr Zeelenberg's position.

Follow-up to the meeting

16.26. Mr Rudrud and Mr Zeelenberg made a further submission on 23 August[40] and Mr Mackenzie also availed himself of the opportunity to submit further comment in a report dated 29 August.[41] These submissions are summarised in paragraphs 76 and 77 of chapter 13. If anything, opinions on both sides became further entrenched.

The transfer of two officers to non-operational duties

16.27. In September 2000 Mr Mackenzie and Mr Dunbar were transferred from operational fingerprint work to non-operational duties at SCRO.[42]

16.28. This followed communications between Mr Mackay and Sir William Rae. By letter dated 15 September 2000,[43] Mr Mackay explained that they had had every opportunity to reconsider their position. The letter noted that Mr Mackay had provided Mr Mackenzie and Mr Dunbar with copies of Mr Kent's images of Y7. These "in the opinion of all, were clearer and sharper" and provided "a window of opportunity" for Mr Mackenzie and Mr Dunbar to depart from what Mr Mackay regarded as the clearly wrong identification of Y7. The fact that they did not do so and stated that they could find forty five points of similarity, along with a report from Mr Zeelenberg, led Mr Mackay to conclude that their positions at the highest level in SCRO were untenable at this material time.

16.29. Sir William has commented in his Inquiry statement that he agreed with Mr Mackay who in this letter said that the fact that Mr Mackenzie and Mr Dunbar continued to be unshaken in their belief in face of contrary opinion raised questions about their competence and capability and was likely to undermine the efforts to restore the reputation of SCRO.[44]

16.30. Sir William responded by letter dated 18 September 2000 stating that he had accepted Mr Mackay's conclusions but would consult with the other members of the APRG. He wrote "the emerging findings from your investigation give us cause to doubt the capability of these officers and until such time as this is resolved they should be re-deployed on other non-operational duties within SCRO."[45]

38 Mr Zeelenberg 8 October page 76
39 Mr Zeelenberg 8 October page 77 and FI_0115 para 52 Inquiry Witness Statement of Mr Zeelenberg
40 AZ_0007
41 CO_0063
42 FI_0053 para 10 Inquiry Witness Statement of Mr Dunbar
43 CO_0381
44 FI_0050 paras 75-77 Inquiry Witness Statement of Sir William Rae
45 CO_0370

16.31. Sir William discussed matters with the APRG and Mr Duncan[46] and all agreed that the two officers should be re-deployed. He spoke to Mr Bell who agreed.[47] Mr Bell then got in touch with Unison and with the Strathclyde Police personnel department. As with the four officers who had been suspended, the decision was not his, but he was the one who implemented it.[48] Following this the officers were put on non-operational duties.[49] This meant that they would not be involved in fingerprint examinations, comparisons or identifications, and would not go to court, other than in "historical" cases.

16.32. Mr Mackenzie retired on 31 March 2007.[50] Mr Dunbar retired on 30 March 2007.[51]

Commentary

16.33. However well-intended in prospect, the meeting suffered because of developments in the circumstances surrounding it, namely the criminal investigation and the consequent suspension of the four principal SCRO examiners, Ms McBride, Mr MacPherson, Mr Stewart and Mr McKenna. The reasoning behind their exclusion from the meeting was correct. It would have been most unfair to the SCRO examiners to have them attend when they were suspects in a criminal investigation. No criticism arises here.

16.34. It is quite clear that attendees came to the meeting with different understandings of what it was intended to achieve. So far as Mr Mackenzie and Mr Dunbar were concerned, colleagues that they had worked with for many years were now suspended and under criminal investigation. The meeting began with them being interviewed by police officers and their presentation proceeded in the presence of not only the investigating officers but also the procurator fiscal who was responsible for that investigation. This must have been disconcerting in the extreme. Given the pressure that they must have been under, it is only natural that they would have perceived the statements made by Mr Zeelenberg, both at Tulliallan and in the subsequent telephone call, as personally threatening.

16.35. Mr Zeelenberg had not been briefed on developments. He now appreciates with the wisdom of hindsight that the point of no return had already been reached[52] but I accept that that was not how he viewed the situation at the time. Like Mr Mackay, he must have considered that there was an opportunity, remote though it may have been, for Mr Mackenzie and Mr Dunbar to change their opinions, perhaps assisted by the availability of the new Kent image which some considered to be clearer than any available to date and which did not have the complication of distortion by the striation. It is probable that the subsequent telephone call occurred in the two week period for reflection after the meeting at Tulliallan and his study of Mr Mackenzie's presentation doubtless added weight to Mr Zeelenberg's concerns. I accept that Mr Zeelenberg was motivated by an intention to assist colleagues, even

46 Deputy Chief Constable Strathclyde
47 FI_0050 para 78 Inquiry Witness Statement of Sir William Rae
48 Mr Bell 3 July page 93
49 FI_0050 para 78 Inquiry Witness Statement of Sir William Rae
50 FI_0046 para 2 Inquiry Witness Statement of Mr Mackenzie
51 FI_0053 para 12 Inquiry Witness Statement of Mr Dunbar
52 Mr Zeelenberg 8 October pages 72-75 and FI_0115 paras 35, 38 and 39 Inquiry Witness Statement of Mr Zeelenberg

if the language that he used was more confrontational than one might have hoped. The warning that he conveyed was, of course, prescient because the fact that Mr Mackenzie and Mr Dunbar adhered to their conclusion in knowledge of the contrary opinion and declined the face-saving opportunity to rely on the emergence of the Kent image led to the effective end of their careers.

16.36. In the circumstances I make no criticism of Mr Zeelenberg.

16.37. As for Mr Mackenzie and Mr Dunbar, the fact that they adhered to their conclusion in face of what they perceived to be threats to their careers is testament to the depth of their conviction that they were right. I would apply Mr Gilchrist's assessment of Mr Mackenzie likewise to Mr Dunbar:

> "I was left with the impression that this was a man who genuinely believes that the fingerprint is that of Shirley McKie."[53]

16.38. My conclusion is that they were wrong in that belief but the belief was no less genuine for that.

53 CO_0006 – letter dated 19 July 2001 to Mr Crowe

CHAPTER 17

EVENTS AFTER THE TRIAL IN *HMA v McKIE* – TREATMENT OF SCRO STAFF

Introduction

17.1. Mr Holmes, on behalf of the core participants from SCRO, submitted in his closing statement to the Inquiry that the six SCRO staff members, Mr MacPherson, Mr Stewart, Ms McBride, Mr McKenna, Mr Mackenzie and Mr Dunbar, were treated unfairly. The decisions made about them did not proceed on a proper analysis of the fingerprint evidence nor on an assessment of their competence but were instead based on external factors, principally the media campaign waged against them leading to their notoriety.[1]

Overview of the six SCRO staff members

17.2. The six SCRO staff members were not all in the same category. Four of them, Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna (who had been the signatories to the joint reports), were the subject of suspension while the two managers, Mr Mackenzie and Mr Dunbar, were moved to non-operational duties. The dates of the initial decisions varied and it would be fair to say that it was Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna who were the principal focus of attention in the following six years.

17.3. The suspension of the four signatories came first in August 2000 and the decision to move the other two to non-operational duties came one month later. The circumstances that culminated in that second decision are discussed in chapter 16. This chapter begins by exploring the reasons for the initial suspension of the four signatories and then addresses the treatment of all six officers in the succeeding six years to early 2007 when their employment in the fingerprint bureau came to an end.[2]

The suspension of the four signatories

17.4. As far as Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna are concerned the critical date appears to be 2 August 2000, the day on which the National Training Centre examiners reported to the Mackay team that "without adequate explanation", there appeared to have been both collective manipulation of evidence and collective collusion to identify Y7 as Ms McKie's.[3]

17.5. The reasons for that conclusion were explained to the Inquiry by Mr Sheppard.

17.6. One factor was the nature of the misidentification. The NTC examiners could not understand how four fingerprint examiners working independently could all

1 Mr Holmes 26 November pages 81-86
2 In March 2007 except for Ms McBride who was dismissed on 1 May 2007. URL: http://www.employmentappeals.gov.uk/Public/Upload/EATS.0020.09ScottishPoliceServAuthorityvMcBride.jacformatted2.doc
3 CO_1318

conclude that Y7 was made by Ms McKie, as the identification was very wrong. It was obviously not Ms McKie's mark.[4]

17.7. Another factor was Mr Sheppard's knowledge of SCRO. He had formed the impression that there was a great deal of peer pressure at SCRO and it was alien to challenge conclusions.[5] The standards SCRO applied to the elimination of marks were also a factor. He understood that eliminations were made to a lesser standard and he suggested that an explanation might be that following the arrest of a suspect less care might have been taken in identifying Y7 as an elimination. After the identification was challenged the SCRO officers may then have worked together to agree a common view.[6] This he accepted was conjecture.[7]

17.8. A further factor was that the two sets of charted enlargements prepared by SCRO showed identical lines to identical positions. It was clear that the productions had been prepared by the officers working together. This alone pointed to collaboration and potentially collusion.[8] He worked on the assumption that each SCRO officer had to conduct his work independently and each should have produced his or her own charted enlargements.[9] The copying of another fingerprint examiner's exhibits (productions) for court would result in disciplinary action in England and Wales.[10]

17.9. Mr Grigg also noted that the fact that charted enlargements were identical pointed to a lack of independent working. They were shoddy. He explained that he could not see how examiners working independently could conclude that the mark was Ms McKie's.[11] He observed to the Inquiry that there may have been an innocent explanation; the point was that an explanation was called for.[12]

Sir William Rae's decision that the officers should be suspended

17.10. When Sir William Rae learned by phone from Mr Mackay of the NTC's findings and the strong opinion that there had been some form of manipulation and collusion,[13] he felt that this was the first substantive evidence supporting the allegation of criminality and concluded that it made it untenable for the four SCRO officers to be allowed to continue to work within SCRO whilst the investigation was ongoing.[14] He spoke to other members of the APRG, who agreed with him.[15]

17.11. Sir William requested written confirmation from Mr Mackay[16] and that came in a letter dated 3 August.[17] In addition to confirming the views expressed by the NTC team, Mr Mackay reported the views of Mr Rudrud and Mr Zeelenberg and Mr Wertheim. Mr Rudrud and Mr Zeelenberg strongly negated the conclusion

4 FI_0082 para 67 Inquiry Witness Statement of Mr Sheppard
5 FI_0082 paras 71-72 Inquiry Witness Statement of Mr Sheppard
6 FI_0082 paras 75-77 Inquiry Witness Statement of Mr Sheppard
7 Mr Sheppard 8 July pages 32-33
8 FI_0082 para 68 Inquiry Witness Statement of Mr Sheppard
9 FI_0082 para 69 Inquiry Witness Statement of Mr Sheppard
10 FI_0082 para 70 Inquiry Witness Statement of Mr Sheppard
11 FI_0081 paras 61-75 Inquiry Witness Statement of Mr Grigg
12 FI_0081 para 76 Inquiry Witness Statement of Mr Grigg
13 FI_0050 para 65 Inquiry Witness Statement of Sir William Rae, see chapter 13
14 FI_0050 para 66 Inquiry Witness Statement of Sir William Rae
15 FI_0050 para 67 Inquiry Witness Statement of Sir William Rae. He also spoke to Mr Duncan, the Deputy Chief Constable of Strathclyde.
16 FI_0050 para 66 Inquiry Witness Statement of Sir William Rae
17 CO_1010

that Y7 was Ms McKie's and their view of the process was that it was, in Mr Mackay's summary, "egregious". As for Mr Wertheim, it was said that he was less circumspect in his condemnation of the four and was alleging a pattern of deception based on a number of factors including the degraded and blurred quality of the images that had been used.

17.12. Mr Mackay's diary records that he contacted Mr Crowe on 3 August. The entry reads: "Contacted Frank Crowe and appraised him and gave him a copy of the letter. Frank Crowe states that it will be 10 days before he gets the other result in the Asbury case but he made the comment 'it now fits into place'."[18] Mr Crowe by the time of the Inquiry had no recollection of this conversation. He explained that "the other result" referred to QI2 Ross.[19] Mr Crowe had accompanied the Danish examiners (Rokkjaer and Rasmussen) on 31 July when they advised that that mark was a misidentification and the comment "it now fits into place" would be consistent with his reaction to that disclosure.[20]

17.13. Mr Mackay's diary then records that he had a further discussion with Sir William Rae regarding release of information to the SCRO director (Mr Bell), which was "agreed on the proviso that it is for his eyes only".

17.14. It is possible that following his conversation with Mr Crowe Mr Mackay may have known about QI2 Ross and informed Sir William Rae about it. However, it appears that Sir William had already reached the conclusion that the SCRO officers should be suspended, based on the information about Y7.

Implementation of the decision

17.15. The governing body with supervisory responsibility for SCRO was the SCRO Executive Committee which Sir William chaired but he did not have the authority to suspend, so he telephoned Mr Bell, explained the position to him and asked him to suspend the officers, documenting this contact by letter dated 3 August 2000.[21]

17.16. Mr Bell said that at the time he was regularly in discussion with Sir William. He thought this particular contact was initially by telephone followed by a fax.[22] Sir William told him that following on from a presentation or information from Mr Mackay it would be appropriate to consider suspending the officers. He was not told what the information from Mr Mackay contained.[23] Mr Bell did not know the grounds for suspension in detail and did not wish to.[24] He was aware of the impact that suspension of the officers would have on the team, and that it would prompt further media speculation. He suspended the officers on receiving written confirmation from Sir William.[25]

17.17. The suspensions were stated to be precautionary "until such time as further investigations have been completed". The letter of suspension referred briefly to Mr Mackay's investigation and, without disclosing any detail, said that he had taken

18 CO_2549 pdf page 5
19 FI_0048 para 18 Inquiry Witness Statement of Sheriff Crowe
20 See chapter 13 paras 62 and 63
21 FI_0050 paras 3, 22, 68, 69 Inquiry Witness Statement of Sir William Rae
22 FI_0043 para 20 Inquiry Witness Statement of Mr Bell
23 FI_0043 para 20 Inquiry Witness Statement of Mr Bell
24 Mr Bell 3 July page 93
25 FI_0043 para 20 Inquiry Witness Statement of Mr Bell and see PS_0195

the views of Mr Rudrud and Mr Zeelenberg, Mr Wertheim and NTC; and it gave this reason for the suspension:

> "The weight of opinion now available alleging gross misconduct or criminal collusion on your part as one of the SCRO fingerprint experts involved in the original identification process is such that I no longer believe that it is tenable for you to continue to perform your duties."[26]

Crown Office involvement

17.18. Crown Office involvement at this stage appears to have been at most limited. Lord Boyd of Duncansby Q.C., then the Lord Advocate, said that he had no involvement in the decision and that it was a decision for Strathclyde Police.[27] Mr Crowe was informed on 3 August, after the decision had been taken by Sir William Rae following his discussions with Mr Mackay. Mr Crowe did not recollect being involved in the decision before this call and he regarded it as being entirely a matter for the police.[28] According to Mr Mackay's letter, Mr Gilchrist was on holiday.[29]

Commentary

The reasons for, and justifiability of, the suspension

17.19. Various individuals have suggested differing reasons for the suspension. Ms McBride believed that it was Messrs Rokkjaer's and Rasmussen's opinions that QD2 had been misidentified that were instrumental in triggering their suspension[30] and Mr MacPherson[31] had the same understanding. Mr McKenna said he wondered if it had some bearing on the suspension.[32] QD2 was the mark the identification of which the Danish experts initially disputed only to reverse their conclusion in 2006;[33] and the concern of the SCRO examiners is that their suspension may have been related to that erroneous dispute.

17.20. The evidence is that the decision was taken by Sir William Rae based on the weight of opinion about Y7 as reported to him in Mr Mackay's letter.

17.21. As noted above, the NTC's opinion was caveated with the phrase "without adequate explanation". The Inquiry has found that a number of factors that caused Mr Sheppard concern at the time were capable of explanation.[34] It appears that the possibility that there might have been satisfactory explanations was not explored at the time and the question arises whether that should have been investigated before the decision was taken to suspend the officers. In light of the opinions reported to him it is difficult to see how Sir William Rae had any alternative but to seek the suspension of the officers. From 6 July 2000 onwards the SCRO officers were suspected of a criminal offence and, on any view, the opinions reported to him provided evidence that misfeasance may have occurred. That called for further investigation and such investigations would have taken some time. It is difficult to

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26 PS_0180 and SP_0004 Appendix 3 pdf page 26
27 FI_0057 para 38 Inquiry Witness Statement of Lord Boyd of Duncansby
28 FI_0048 para 20 Inquiry Witness Statement of Sheriff Crowe
29 CO_1010
30 FI_0039 para 144 Inquiry Witness Statement of Ms McBride
31 FI_0055 para 110 Inquiry Witness Statement of Mr MacPherson
32 FI_0054 para 130 Inquiry Witness Statement of Mr McKenna
33 See chapter 27 para 14ff
34 See chapter 28 para 96

see how the SCRO officers could continue to assist in criminal investigations in their ordinary course of work in such circumstances.

17.22. The decision to suspend proceeded on an analysis of the fingerprint evidence relating to Y7 and was not based on any external factors. Based on the information available to Sir William Rae the decision to suspend the SCRO officers cannot be criticised.

The transfer of Mr Mackenzie and Mr Dunbar to non-operational duties

17.23. Similarly the decision to transfer Mr Mackenzie and Mr Dunbar to non-operational duties was based on fingerprint evidence and not any external factor.

Further decisions concerning the six SCRO examiners

Decision that there would be no prosecution of the four examiners

17.24. The progression of the criminal investigation is narrated in chapter 13. A public announcement that there would be no proceedings against the four officers was made on 7 September 2001.[35]

Consequential issues

17.25. From this point three different matters begin to interact and have a bearing on the work arrangements for the six officers:

(i) possible disciplinary proceedings against the six officers;

(ii) a civil action by Ms McKie for compensation; and

(iii) consideration by Crown Office whether or not to use the officers as witnesses in any criminal case.

Civil action for compensation

17.26. Ms McKie's legal action for compensation commenced in 2001. Initially her claim was based on a number of different grounds but by December 2003[36] it was recognised that the claim was one that required proof of malice and that was formally confirmed by an amendment lodged in July 2004. As Lord Hodge put it, in deciding on the level of legal expenses payable after the conclusion of the case, to succeed in that claim Ms McKie had to prove not only that Y7 was not her print but also that "the relevant SCRO officials acted maliciously in persisting with their assertions that there was a match, misrepresenting the fingerprint evidence in the way that it was presented to the criminal court and hiding the existence of doubters within SCRO."[37]

17.27. The history of the action is summarised in Lord Hodge's opinion. The action settled in February 2006 when Scottish Ministers agreed to pay compensation to Ms McKie. That settlement is outside the Inquiry's terms of reference and developments in that action will be discussed only insofar as they impacted on the treatment of the SCRO officers.

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35 Referred to in the Black Report SP_0004

36 Lord Wheatley in McKie v Strathclyde Joint Police Board, 2004 SLT 982 at para 46, URL: http://www.scotcourts.gov.uk/opinions/A4960.html

37 Lord Hodge in McKie v Scottish Ministers 2006 SC 528, para 25, URL: http://www.scotcourts.gov.uk/opinions/2006CSOH54.html

Return to work and the use of the SCRO examiners in criminal trials – developments to 2003

17.28. Most of the text that follows concerns the suspended four officers Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna. Lord Boyd, the Lord Advocate over the relevant period, had no recollection of any particular decisions regarding Mr Mackenzie and Mr Dunbar[38] and the material available to the Inquiry relating to them was limited.

17.29. After the decision of the Lord Advocate not to prosecute the four SCRO officers, Strathclyde Joint Police Board, as employers, agreed a special disciplinary investigative procedure in relation to Mr MacPherson, Ms McBride, Mr McKenna and Mr Stewart and also Mr Mackenzie and Mr Dunbar. That procedure led to an investigation by James Black as to whether any disciplinary action should be taken against the six officers.

17.30. Mr Crowe's notes to the Lord Advocate recommending no proceedings had flagged up two consequential issues: the first being the ability to use the officers as witnesses in the future and the second being a concern how a disputed mark might be dealt with in the future.[39] As to the first of these matters, Mr Crowe's note of 20 July 2001 was alive to the fact that other officers with a similar view on Y7 continued to work as normal.[40] The Lord Advocate's note of 21 August 2001 (in which he agreed with the recommendation that there should be no criminal proceedings) envisaged a further discussion about whether the four officers could be "used" in future.[41] Lord Boyd recollected that there were a number of discussions on this point.[42]

17.31. On or around 7 September Mr Gilchrist provided a note to the Lord Advocate about this issue. This note proceeds on the hypothesis that the Crown's position must be that the SCRO examiners had made serious mistakes in the Asbury/McKie cases.[43] Nonetheless, he concluded that no decision need be taken on the use of the officers as witnesses until SCRO had decided whether there were to be disciplinary proceedings.[44] Lord Boyd confirmed that he initialled the advice as being noted by him.[45]

17.32. Lord Boyd explained that it was clear in his own mind that the decision not to use the officers was not taken at this stage. The decision was deferred firstly for the disciplinary proceedings and then the civil proceedings. Crown Office was mindful of the fact that a decision not to use the officers again was likely to result in them losing their careers and so the final decision was deferred. It might have been that the civil proceedings had a different outcome and the SCRO officers could have recommenced full duties.[46] He hoped that they could continue to be employed at

38 FI_0057 para 51 Inquiry Witness Statement of Lord Boyd of Duncansby
39 CO_0027
40 CO_0027
41 CO_0028
42 FI_0057 para 47 Inquiry Witness Statement of Lord Boyd of Duncansby
43 Contrast paragraph 37 below
44 CO_4065
45 FI_0079 para 5 Inquiry Witness Statement (Supp.) of Lord Boyd of Duncansby
46 Lord Boyd of Duncansby 10 November pages 49-50

SCRO.[47] Lord Boyd regretted the fact that this hung over the individuals for so long.[48]

17.33. Mr Gilchrist's recollection was similar. He explained that his view was that no decision need be taken until at least the civil action and the disciplinary proceedings had come to a close. The final definitive decision not to use them as witnesses was taken after the end of the civil proceedings.[49] It was possible the civil proceedings, in particular, would result in a judicial determination of whether there had been incompetence or something worse.[50] He accepted that it was regrettable that the civil proceedings took so long and did not produce a judicial determination.[51]

17.34. The Black Report was produced on 28 February 2002,[52] and the scrutiny committee for which Mr Black prepared it made recommendations to the Strathclyde Joint Police Board. The conclusion was that no matters of misconduct or lack of capability had taken place in the work surrounding Y7 and QI2, and that there should be reinstatement to their normal positions for the four suspended officers and a return to operational duties for the other two, Mr Mackenzie and Mr Dunbar. The report also recommended that no action be taken against Mr Bruce or Mr Geddes regarding their work on QI2. [53]

17.35. Counsel to the Inquiry put it to Mr Bell that there had been some criticism over the years that the Black Report did not look at the nub of the matter namely whether the examiners had got the identification right or not. In response Mr Bell, who had been involved in how the process was going to be structured, said that this was not Mr Black's remit which was rather to look at the process and procedures and assure the Board that there were no matters of concern there.[54]

17.36. Mr Bell explained that SCRO engaged with the officers and their union and prepared a return to work strategy which included re-training. Upon return to work they were put on administrative rather than operational duties. Mr Dunbar and Mr Mackenzie were not returned to operational duties, by which Mr Bell referred to giving evidence in court.[55] The return to work strategy and the duties assigned to the six officers are detailed by Mr Innes, the Head of the Scottish Fingerprint Service.[56]

17.37. The fact that the four had returned to work meant that the use of the examiners in criminal trials fell to be considered. A minute to Lord Boyd from Mr Gilchrist dated 21 March 2002 suggested two options: (1) informing SCRO that Crown Office was not prepared to accept reports from the officers; or (2) accepting reports from them but adopting a policy of not calling them to give evidence if the defence challenged the reports. Mr Gilchrist favoured the second option, but wrote that a decision

47 Lord Boyd of Duncansby 10 November page 51
48 Lord Boyd of Duncansby 10 November pages 49-50
49 FI_0072 para 54 Inquiry Witness Statement of Sheriff Gilchrist
50 Mr Gilchrist 24 June pages 81-83
51 Mr Gilchrist 24 June pages 155-156
52 SP_0004
53 SP_0004 pdf page 12
54 Mr Bell 3 July pages 91-92
55 Mr Bell 3 July pages 94-96 and FI_0043 paras 24-27 Inquiry Witness Statement of Mr Bell
56 FI_2410 para 121ff Inquiry Witness Statement of Mr Innes

could await sight of the Black report which had been requested. Incidentally, in this note Mr Gilchrist was indecisive as to whether or not Y7 and QI2 Ross had been misidentified. Experts instructed by the Crown had concluded that they had been misidentified but Mr Gilchrist wrote that following his investigation his own conclusion was that there remained a possibility that the identifications were correct but not to the 16-point standard.[57] This reflects the absence of a definitive, official ruling on the identification of the marks.

17.38. Lord Boyd's private secretary's note to Mr Gilchrist on 27 March 2002 indicated that the Lord Advocate did not consider he needed to make a judgment at that time because matters currently rested with SCRO.[58] Lord Boyd explained that the decision was that in the first instance Crown Office would wish to see the material that went to the disciplinary panel.[59]

17.39. Mr Bell did not wish to provide a copy of the Black report to a third party and the Lord Advocate instructed Mr Gilchrist to discuss this with Mr Bell, observing: "To be blunt I find it difficult to understand how the Tribunal [sic] came to its conclusions standing our own view of what went wrong."[60]

17.40. Mr Gilchrist met Mr Bell and the clerk to the Strathclyde Joint Police Board and reported to the Lord Advocate by minute dated 24 May 2002.[61] He had been told that the independent expert, i.e. Mr Black, had examined whether the four had broken any rules or failed to follow set procedures, not attempted to enquire into whether they made a misidentification, and so he did not think that Mr Black's report was likely to assist the Crown in deciding whether to accept reports from these examiners.

17.41. He noted that experts instructed by HMCICS and Crown Office had advised that the officers had made a "bad misidentification" but other experts insisted they had got it right. There was no basis on which to challenge the officers' expertise, extensive checks of their work had been carried out with no mistakes found. "That does make the misidentification in the McKie case perplexing; but we cannot say that they are incompetent just because they got it wrong in one case." He referred to the ongoing civil action by Ms McKie and mentioned that the Scottish Executive's Justice Department was attempting to find an expert who could be asked to examine the fingerprint evidence with a view to saying whether there was any evidence of negligence on the part of the four. He did not think it would be appropriate to take a decision until the civil proceedings had concluded. Lord Boyd agreed that there should be no further action until then.[62]

17.42. The minute also noted that Mr Bell had said that none of the four would be used to identify fingerprints for the foreseeable future. If any of them wanted to be involved in making identifications in criminal cases and Mr Bell felt that they were ready for such work, he would contact Crown Office to ascertain if the Crown was willing to

57 CO_4066
58 CO_4069
59 FI_0079 para 7 Inquiry Witness Statement (Supp.) of Lord Boyd of Duncansby
60 FI_0079 para 9 Inquiry Witness Statement (Supp.) of Lord Boyd of Duncansby and CO_4073
61 CO_4079
62 FI_0079 para 10 Inquiry Witness Statement (Supp.) of Lord Boyd of Duncansby

accept reports from them but no such approach would be made until after the civil proceedings had been concluded.

17.43. In his evidence to the Inquiry Mr Bell did not agree that the position was that he would only make an approach to the Crown after the civil proceedings had been concluded.[63] He said his recollection was that they had agreed that the officers would go through the return to work process. Once he received a report from the Head of the Scottish Fingerprint Service saying that they had satisfactorily completed it he would write to the Crown to advise them of this and that the officers were available.[64]

17.44. A letter dated 31 May 2002 from Mr Bell to Mr Gilchrist[65] refers to a discussion on 30 May. Mr Bell could not remember this discussion which was on the telephone.[66] The letter noted that advice from employment law specialists was that: the officers could claim constructive dismissal if SCRO were to prevent them from being available to give expert evidence and whilst there might be some grounds for the Crown stating that they did not wish to receive such evidence from the officers, the decision would leave SCRO open to challenge of constructive dismissal. This was because there was no evidence of criminality, misconduct, or lack of capability. SCRO was also advised that if the officers proceeded with a constructive dismissal claim, the Crown would be called to explain their involvement in that decision-making process. Mr Bell explained that he told Crown Office this so that it was aware of the full background.[67]

17.45. The letter also stated “While the officers are currently on the list of expert witnesses, as director, I would consider it appropriate that when the officers are ready or indeed are being considered for evidential purposes I would meet with the Crown to address issues relevant at that particular time.”

17.46. Although he had concluded that when the officers were ready or indeed were to be considered for evidential purposes then he should meet with the Crown to address the issue at that time,[68] Mr Bell’s position was that it was unlikely a decision as to the use of the SCRO officers would be made before the conclusion of the civil action. However the issue might well be discussed before the end of the civil action.[69]

17.47. A letter from Mr Gilchrist to Mr Bell dated 9 July 2002 stated: “The Crown’s position remains that of not wishing to reach a view on the use of the four experts until the civil and appeal proceedings have been concluded.”[70]

17.48. Mr Bell told the Inquiry that his recollection was that he would have advised the four officers and their staff association of his correspondence and meetings with the Crown either personally or through the Head of the Scottish Fingerprint Service whom he ensured was kept fully informed of developments and that he expected

63 Mr Bell 3 July pages 100-101
64 Mr Bell 3 July page 96
65 CO_4081
66 FI_0077 Inquiry Witness Statement (Supp.) of Mr Bell
67 Mr Bell 3 July pages 98-99
68 FI_0077 page 2 Inquiry Witness Statement (Supp.) of Mr Bell
69 Mr Bell 3 July pages 99-101
70 PS_0102

him in turn to ensure that the staff were made aware.[71] He recalled discussions with Mr Gilchrist and said it was clear that when they were reinstated they were not to be involved in any identifications and would not be put forward for the list for court. There was an understanding between him and the Crown. He said that the officers understood this too. "They were not happy but they were as accommodating as they could be."[72] He made a similar comment as regards Mr Mackenzie and Mr Dunbar not being returned to operational duties namely that they, as well as the Crown and the union, understood that if they were used in court they could be open to challenge and that could compromise a case.[73]

External factors

17.49. Mr Zeelenberg explained that the absence of an official admission of a mistake in the identification of Y7 led to two petitions being prepared.[74] The first, in May 2002, ran in name of 130 fingerprint experts and was submitted to the Minister of Justice.[75] The second, in September 2002, in name of Messrs Bayle, Grieve, Wertheim and Zeelenberg was submitted to the Scottish Parliament and called for a parliamentary inquiry.[76]

Return to work and the use of the SCRO examiners in criminal trials – developments from 2003

17.50. By July 2003 Scottish Ministers had instructed Mr John MacLeod, an independent fingerprint expert, to give an opinion for the purposes of the civil action. In December 2003, following a legal debate in the Court of Session, Lord Wheatley refused to dismiss the civil action and allowed it to go to proof.[77] The Scottish Ministers appealed and the case was pending before the appeal court until October 2004 when, after Ms McKie had clarified the legal basis of her claim, the case was sent to a proof (i.e. a hearing on evidence).[78]

17.51. In a letter dated 12 February 2004[79] Mr Bell notified Crown Office that the four officers had successfully completed the return to work programme and were considered capable of returning to full duties "and as such should now be included on the Crown Office List of Expert Witnesses."[80] It was made clear in this letter that the officers were expecting to return to giving evidence. They and their union expected that completing the return to work strategy would place them in a position to be returned to full duties. Mr Bell's expectation was that this was a decision Crown Office would make and that they possibly would not do so until after the civil litigation.[81]

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71 FI_0077 page 3 Inquiry Witness Statement (Supp.) of Mr Bell
72 FI_0043 para 22 Inquiry Witness Statement of Mr Bell
73 FI_0043 paras 27-28 Inquiry Witness Statement of Mr Bell
74 FI_0115 para 62ff Inquiry Witness Statement of Mr Zeelenberg
75 AZ_0008
76 AZ_0011
77 A proof before answer on her pleadings.
78 For a summary of the sequence of events in the civil case see Lord Hodge, URL: http://www.scotcourts.gov.uk/opinions/2006CSOH54.html
79 CO_4086
80 This appears to be a reference to authorisation under section 280 of the Criminal Procedure (Scotland) Act 1995 but, as explained in chapter 40 there is not in fact a Crown Office list of expert witnesses, as Mr Bell acknowledged in his oral evidence – 3 July page 97.
81 Mr Bell 3 July pages 103-104

17.52. In his letter Mr Bell suggested meeting and Mr Gilchrist in a response dated 23 February 2004[82] agreed that they should meet and noted that his one immediate concern was that the civil action was unresolved: for example, the report from the expert witness (Mr MacLeod) as to negligence on the part of the SCRO officers was still awaited.

17.53. It appears that the meeting took place although Mr Bell had no recollection of it[83] and Mr Gilchrist updated the Lord Advocate by a note dated 10 March 2004[84] in which he indicated that if any of the officers were to give evidence arrangements could be made to mitigate the risk of challenges to fingerprint evidence. It might no longer be appropriate to await the conclusion of the civil action which was progressing at a "snail's pace". Mr John MacLeod was expected to view the productions that month and Mr Gilchrist thought it was legitimate to delay reaching any view until the Scottish Executive's Justice Department had obtained its expert's report. His recommendation was that he write to SCRO to say that the Crown awaited further developments in the civil proceedings before indicating whether they would be prepared to use reports from the experts in criminal proceedings.

17.54. Lord Boyd agreed with the recommendation,[85] his response recording that "he would not wish matters to be delayed too long." Lord Boyd explained in his evidence that he was frustrated with how long the proceedings were taking.[86]

17.55. In March 2004 Mr Gilchrist contacted a solicitor in the Scottish Executive to ask about the current position in relation to Mr MacLeod's report[87] and he wrote to Mr Bell by letter dated 12 March 2004.[88] The letter said that Crown Office hoped to be in a position to say fairly soon whether the Crown would wish to use any of the four experts as a result of developments in the McKie civil action. In particular they would wish to see the independent expert's report before making any decision. The letter also noted Crown Office concerns about the experts being questioned in future proceedings about the McKie and Asbury cases. Mr Bell said that this reflected discussions at the time. A decision about the SCRO officers was deferred pending the independent expert's report and nothing further was raised with him before he retired as Director of SCRO in 2005.[89]

17.56. Mr MacLeod provided three reports to the Scottish Executive. His first report, dated 3 July 2004, dealt only with Y7 and he advised that Ms McKie could not have made that mark.[90] His second report, dated 20 June 2005, addressed QI2 Ross and he concluded that it could not have been made by Miss Ross.[91] His third report was dated 5 October 2005 and considered the question whether the SCRO officers had been negligent in relation to Y7.[92] The opinion of Lord Hodge indicates that the

82 CO_4087
83 Mr Bell 3 July page 104
84 CO_4089
85 FI_0079 para 13 Inquiry Witness Statement (Supp.) of Lord Boyd of Duncansby
86 Lord Boyd of Duncansby 10 November page 50
87 CO_4092
88 CO_4091
89 Mr Bell 3 July pages 104-106 and FI_0043 para 1 Inquiry Witness Statement of Mr Bell. He retired as Director of SCRO in 2005.
90 SG_0635
91 SG_0704
92 SG_0705

position of Scottish Ministers changed in light of Mr MacLeod's conclusions in his first two reports:

> "Matters moved on significantly [as regards the civil case] in July 2005 when the Scottish Ministers, having received a confidential report from Mr John MacLeod …announced that they would admit that the SCRO officials had made a mistake in identifying fingerprint Y7 as the pursuer's print and that they would enter into negotiations to settle the action."[93]

17.57. This change of tack did not have the support of the SCRO staff members. Mr MacPherson, Mr Stewart, Mr McKenna and Ms McBride wrote a letter to the Lord President of the Court of Session dated 14 November 2005[94] in which they expressed themselves still confident that the identifications made were accurate and said that the admission that Y7 was not that of Ms McKie made their positions untenable. They were aggrieved by their inability to make public comment while others, including the McKies, the Lord Advocate and Scottish Ministers, were making statements. There were concurring statements from Mr Mackenzie and Mr Dunbar and from Messrs Foley, Bruce and Geddes (expressly as examiners who had also reached the conclusion that Y7 had been made by Ms McKie) and a number of other staff members from the Glasgow bureau countersigned the letter.

17.58. By December 2005 Mr Brisbane had succeeded Mr Gilchrist as Deputy Crown Agent and Mr McLean had taken over from Mr Bell as Director of SCRO. Mr McLean wrote to Mr Brisbane on 13 December 2005 to ask if the situation in relation to the four experts was still the same and if there was any intention to review it at some time in the near future. Mr Brisbane contacted Mr Gilchrist[95] to find out how things had been left before replying to Mr McLean on 16 January 2006.[96] He confirmed the view was that it was appropriate to await the outcome of the civil proceedings and as this was now imminent there was no reason to change that view.

17.59. The civil proceedings settled on 7 February 2006. The terms upon which the Scottish Ministers settled the action were expressly that they did not admit legal liability as they continued to assert that the relevant SCRO officials acted in good faith.[97] The First Minister's statement in the Scottish Parliament on 9 February 2006 characterised it as "an honest mistake".[98]

17.60. Mr Brisbane sent a minute to the Law Officers dated 27 March 2006 concerning the position of the four suspended officers and also the two supervisors i.e. Mr Mackenzie and Mr Dunbar. By then there had been a leak of part of the Mackay

93 Lord Hodge, URL: http://www.scotcourts.gov.uk/opinions/2006CSOH54.html
94 SG_0557
95 CO_4094
96 CO_4095
97 Lord Hodge: URL: http://www.scotcourts.gov.uk/opinions/2006CSOH54.html. See also Scottish Parliament Justice 1 Committee 3rd Report, 2007 (Session 2) Inquiry into the Scottish Criminal Record Office and the Scottish Fingerprint Service, SP Paper 743, para 322ff.
98 Scottish Parliament Official Report, 9 February 2006, column 23240, URL: http://www.scottish.parliament.uk/business/officialReports/meetingsParliament/or-06/sor0209-02.htm#Col23255 (see chapter 13)

report[99] disclosing that Mr Mackay had considered that there was criminal conduct. That report had previously been kept confidential even from the parties to the civil action (including Scottish Ministers). Mr Brisbane's view was that it was hard to envisage any circumstances in which the officers would not face challenge on the basis of Mr Mackay's allegations of criminality and the characterisation of the officers' conduct in the McKie case as "an honest mistake" could prove problematic.[100] The minute went on "it is difficult to see how any of the persons concerned could be used as part of the evidential process without the significant risk of the history of the McKie case being introduced. This is unfortunate as it could of course be placed alongside their own careers – which in the case of some of them are indeed distinguished – and the totality of the review exercises that were conducted on SCRO work in 2000."

17.61. On 28 March 2006 the Lord Advocate appended a manuscript note to Mr Brisbane's minute: "I consider that it would not be appropriate to have the SCRO personnel involved in the McKie case as witnesses in criminal trials in the future. For the reasons discussed today." Lord Boyd said that in coming to that decision he had to take account of the wider public interest.[101] The officers had been the subject of a public campaign. Whatever view was taken of the Mackay report, it had been leaked[102] and recommended criminal proceedings. The settlement of the civil action would have had some bearing on the credibility of the officers. They had become notorious.[103] They would have been subject to cross-examination on the contents of Mr Mackay's report and it would have been difficult for the Crown to suggest that they be accepted as credible and reliable witnesses at that point. Although one might have sympathy they could not be used in the public interest.[104] Lord Boyd was content that the document reflected the factors that underpinned his decision.[105]

17.62. The Inquiry has not considered in detail what steps were taken thereafter but on 12 September 2006 Lord Boyd made a public statement when he gave evidence to the Justice 1 Committee's inquiry and said this in relation to the Crown's intention to call the officers as witnesses:

> "The matter is under discussion, but it is fair to say that there are considerable difficulties in that respect. Frankly, the situation has not been helped by the unauthorised disclosure of Mr Mackay's report. I have enormous sympathy with the SCRO officers, some of whom are very experienced and have given very good service. However, my job is to ensure that criminal trials are properly conducted and that people have confidence in our criminal justice system. I have a concern that must be addressed. The position of the officers is now so notorious — I do not mean that in a pejorative sense, but the views that have been taken on them are well known — that if any of them were called as a

99 Articles in the Scotland on Sunday newspaper about Mr Mackay's report were published on 12, 19 and 26 February 2006: see chapter 13.
100 CO_4096
101 FI_0079 para 18 Inquiry Witness Statement (Supp.) of Lord Boyd of Duncansby
102 The BBC published the 58 page Mackay Report Executive Summary on 3 May 2006: see chapter 13.
103 Lord Boyd of Duncansby 10 November pages 46-47
104 Lord Boyd of Duncansby 10 November page 48
105 Lord Boyd of Duncansby 10 November page 56

witness, the trial concerned might well become a trial of the officer, rather than of the accused. I want to avoid that."[106]

17.63. Ms McBride said that on that same day a statement was released by the interim Chief Executive of the SPSA that it was the intention to remove the officers from their employment.[107] Scottish Fingerprint Service staff were transferred to SPSA on 1 April 2007[108] and, with the exception of Ms McBride who brought proceedings for unfair dismissal, matters were resolved in relation to the six officers on the eve of that event.

The SCRO officers' accounts of their return to work

17.64. Mr MacPherson referred to the period from his return to work in May 2002 until being made redundant in 2007. He was put on a return to work matrix that he thought would progress him towards re-inclusion on the Crown Office list from which, unbeknown to him, he had been removed and a return to full operational duties in line with the Black report. He sat a CTS (Collaborative Testing Services) competency test soon after his return and each year afterwards and he achieved 100%. In 2004 he and Mr Stewart were involved in setting up the quality assurance unit. Sometime after his return to work he was allowed to do the full remit of an expert's duty bar going to court.[109]

17.65. Mr Stewart said that when he returned to work in April/May 2002 the original intention was that he would be returned to full duties but this never happened. He and Mr MacPherson became part of the quality assurance team and in that capacity he was involved in ISO accreditation and devising new processes and forms. He left SCRO on 31 March 2007 having been given the option of leaving on an agreed package, negotiated by his union, or being sacked. He felt aggrieved that he was never allowed to defend himself against the serious allegations made against him; that he and his colleagues were subject to a media campaign and vendetta. They were told not to comment on the matter in public and warned that if they did they would face disciplinary action. He felt unsupported by his employers. [110]

17.66. Ms McBride similarly did not return to full duties.[111]

17.67. Following his return to work Mr McKenna had to write everything he did down and have it checked by another expert. He was not allowed to check suspects, only to carry out AFR assessments and eliminations. He did not return to full duties and left SCRO by agreement on 31 March 2007. He said the fact that he was to be made redundant was announced at the time the Lord Advocate was to give evidence to the Justice 1 Committee and that he did not know why he was made redundant. It was put to him as an offer he could not refuse and he transferred to a policy position with Strathclyde Police. He also said that the officers were told that they could not talk about the matter publicly.[112]

106 Scottish Parliament Official Report 12 September 2006 Col 3697
107 FI_0039 para 148 Inquiry Witness Statement of Ms McBride
108 FI_0153 para 2 Inquiry Witness Statement of Mr Nelson
109 Mr MacPherson 28 October page 8 and FI_0055 paras 27, 83-85 Inquiry Witness Statement of Mr MacPherson
110 FI_0036 paras 2, 283-288, 296-297 Inquiry Witness Statement of Mr Stewart
111 FI_0039 para 151 Inquiry Witness Statement of Ms McBride
112 FI_0054 paras 2-3,135-136, 145-147 Inquiry Witness Statement of Mr McKenna

17.68. Mr Mackenzie retired on 31 March 2007.[113] Mr Dunbar retired on 30 March 2007.[114]

Position of other SCRO employees involved in Y7

17.69. A number of other SCRO fingerprint officers agreed with the four that Mr Gilchrist had investigated. In correspondence Mr McKie questioned whether others involved in the identification of Y7 (Mr Foley, Mr Bruce and Mr Geddes) should be disqualified from giving evidence. In reply to his letter of 1 September 2008 to the Lord Advocate[115] Mr Dunn (the Deputy Crown Agent) advised that these three officers remained authorised under section 280 of the Criminal Procedure (Scotland) Act 1995, they had given reports and two of them had been led in evidence. Mr Dunn explained that authorisation under the Act was for Scottish Ministers not the Crown, and that the ability to provide routine evidence covered by the authorisation was not necessarily the same as being able to give evidence as a person whom the court would accept as an "expert" witness.[116]

17.70. Mr Gilchrist's view was that the other officers were in a different position. They had, at worst, made a mistake. There had been no claims of dishonesty against them. They had not appeared in court in the trials in *HMA v Asbury* and *HMA v McKie* and had more limited involvement.[117]

17.71. Lord Boyd explained that the difference was that the "notoriety" caused by the campaign and the civil proceedings attached to the four officers who had signed the reports and to Mr Mackenzie and Mr Dunbar as their supervisors and not to the others who had been able to continue to work without any undue difficulties.[118]

Commentary – the treatment of the SCRO officers

17.72. The initial decisions to suspend four officers and transfer the other two to non-operational duties have already been commented upon. In the succeeding six years the prominent dates are:

- 7 September 2001 – announcement that there were to be no criminal proceedings;
- May 2002 – return to work by the four suspended officers following the Black report;
- February 2004 – their return to work programme completed; and
- 31 March 2007 – end of SCRO employment for most of the officers.

17.73. This is an extraordinarily long period throughout which the six officers' careers were in suspense because Crown Office would not use them as witnesses. Mr Bell has described the media attention as relentless[119] and I accept that the six officers were caught up in a "maelstrom of negative publicity". Nonetheless, I am satisfied that there were objectively justifiable reasons for the decisions that were taken.

113 FI_0046 para 2 Inquiry Witness Statement of Mr Mackenzie
114 FI_0053 para 12 Inquiry Witness Statement of Mr Dunbar
115 DB_0741
116 DB_0743 - letter dated 17 October 2008. Authorisation is discussed in chapter 40.
117 FI_0072 para 56 Inquiry Witness Statement of Sheriff Gilchrist
118 Lord Boyd of Duncansby 10 November page 51-52
119 See chapter 13 para 26

17.74. The announcement that there were to be no criminal proceedings still left the possibility of disciplinary proceedings covering essentially the same matters. The Black report resulted in the four suspended officers returning to work but the practical value of that report was undermined by the fact that it had not considered whether the relevant marks had been misidentified or not. In any event by the date of the return to work the civil action had begun.

17.75. The line adopted by Crown Office, in essence that the officers could not be used unless and until they were vindicated in the court proceedings, was realistic given that the claim by Ms McKie for compensation proceeded on an allegation that the four examiners had not only made mistaken identifications but had acted with malice.

17.76. In February/March 2004 Crown Office was concerned about the pace of the civil case but in July 2004 the Scottish Executive received the first report from Mr MacLeod which supported the view that Y7 had been misidentified. It is not surprising therefore that the decision continued to be deferred pending the outcome of the civil action. It was not envisaged at the time that it would take so long to bring the proceedings to a conclusion.

17.77. The fact that the civil proceedings were compromised with no judicial determination of the dispute concerning the fingerprints was unfortunate for the affected SCRO officers but the conclusion of the proceedings afforded an opportunity for their positions to be reviewed. Within days of the action settling, circumstances changed once more when the conclusion of the Mackay report, that there had been criminal conduct, was leaked. It appears that a decision as to the use of the officers was taken by the Lord Advocate soon after this. The SCRO officers would no longer be used to give evidence in criminal trials.

17.78. There was an absence of any procedure to review the authorisation by Scottish Ministers of any forensic scientist under section 280 of the Criminal Procedure (Scotland) Act 1995 but even if authorisation were to be based on a current assessment of competence it could not dictate the outcome of the potentially distinct question whether it is appropriate to lead the authorised individual as a witness in a criminal trial. In considering that question in relation to these six officers the Crown quite properly had to take into account the clear and real risk that, if any of them were to be called as a witness at a trial, the issue of the alleged misidentification of Y7 and their part in it would be raised and would distract the trial from the critical issue: the guilt or innocence of the accused. The decision of Crown Office not to use these officers seems inevitable and correct given the circumstances that had unfolded.

17.79. The primary focus of the Crown Office decision-making was on the four signatories to the joint reports, with no detailed separate consideration being given to Mr Mackenzie and Mr Dunbar. The overriding fact was that the notoriety that concerned Crown Office attached to all six of them. Crown Office was aware that it continued to use other SCRO examiners who shared the same view of Y7 but no difficulty had been experienced when those officers were used as witnesses. I am satisfied that the notoriety peculiar to Mr MacPherson, Mr Stewart, Mr McKenna and Ms McBride and, perhaps to a lesser extent, to Mr Mackenzie and Mr Dunbar, justified differential treatment of them.

17.80. It is also difficult to see how these individuals, either in person or through their employers, could have been permitted to respond in public to the allegations against them while the civil proceedings were running. Public comment on the substance of allegations in court proceedings is ordinarily discouraged and even in the exceptional circumstances of the media publicity surrounding this case I am satisfied that the employers acted responsibly in keeping public comment to a minimum.

CHAPTER 18

SCENE OF CRIME EXAMINATION PROCEDURES AND THE DISCOVERY OF Y7

Introduction

18.1. Y7 was not found when the bathroom door-frame was dusted with aluminium powder on 9 January but was found when the scene of crime officers used black powder on 14 January.[1] One of the SOCOs, Mr Ferguson was critical of the decision to start with aluminium powder[2] and this gave rise to two issues concerning proper practice for scene of crime examination. The first was the extent to which the selection of the powder to be used can affect the discovery of prints and the second was the acceptability of a sequential application of different powders. The substantive questions to which those issues lead are whether any inference can be drawn as to the date when Y7 was placed on the door-frame and, assuming it to have been there on 9 January, whether a clearer impression of the mark would have been obtained had the examination begun with black powder. That was the crux of Mr Ferguson's e-mail to Mr McKie in January 2000:

> "Had the hall been examined in black powder at the start this whole sorry affair would never have happened. At least that was how I felt at the time. The print which was mistakenly identified as Ms McKie's may or may not have been there. It may have been clearer and then possibly not mistakenly identified."[3]

18.2. The inference, if any, to be drawn in relation to the date of placement of the mark Y7 is discussed in chapter 3. This chapter considers whether the scene of crime examination was consistent with acceptable practice in relation to the detection of Y7.

The scene of crime examination for marks

18.3. Mr Ferguson explained that his training was that black powder was best suited to white door facings[4] and he thought that using aluminium powder on the door-frame was unusual because aluminium powder was more suited for other surfaces such as glass.[5] Ultimately, though, he acknowledged that it came down to the individual choice of the scene of crime examiner.[6] Mr Thurley was finding marks with the aluminium powder and he did not say anything to Mr Thurley at the time about the use of that powder.[7]

18.4. Mr Kerr, the detective in charge at the scene, told the Inquiry that he would have expected black powder to have been used. Though not an expert he had had some training on obtaining fingerprint evidence, and had seen aluminium powder used

1 See chapter 3
2 See chapter 3 paras 3 and 87
3 CO_1327
4 Mr Ferguson 10 June pages 75-76
5 FI_0010 para 20 Inquiry Witness Statement of Mr Ferguson
6 Mr Ferguson 10 June page 75
7 Mr Ferguson 10 June pages 74ff, 82 and FI_0010 paras 19–21 Inquiry Witness Statement of Mr Ferguson

on gloss surfaces before but not at major incidents. He recalled heated debate primarily instigated by Mr Moffat about this.[8]

18.5. The decision to use aluminium powder was made by Mr Thurley. He was the head of the team of SOCOs on site.[9] He accepted that the facts that the area around the bathroom door was heavily nicotine stained and affected by the presence of steam might have called for the use of black powder. However, he said that because a large number of prints were being obtained he was happy to continue using aluminium powder.[10] It was the least destructive and using it first gave the option of using other powders and chemicals later.[11] He had no recollection of any discussion or disagreement about the use of aluminium powder.[12]

18.6. Mr Moffat, who began dusting on 10 January, started looking for marks upstairs using black powder but after learning that Mr Thurley wanted everyone to use it and discussing the matter with him he switched to aluminium.[13] In his oral evidence he referred to the SOCOs being upset that they were not being allowed to use black powder[14] but he accepted that the choice was personal because both give good results.[15]

18.7. Mr Hunter commented that there was a generational difference among officers, with younger officers tending to use black powder first because it gave instant results and older officers using aluminium first and then black.[16] Mr Ferguson had less than two years' experience in 1997.[17] Mr Hunter had sixteen years' experience and thought that the use of aluminium powder first was a reasonable choice because it left other options open.[18]

18.8. Mr Hogg, Head of the Identification Bureau at the time, said that he was happy with the use of either powder. He confirmed that this was a matter on which some officers had a personal preference but because black could be used after aluminium his position was that in the event of doubt an officer should start with aluminium and would normally continue to use it if he was getting results with it.[19]

18.9. Mr Hunter said it was not usual to be told what powder to use[20] and Mr Hogg's evidence would also suggest that, because the powder to be used was a matter of personal preference, it would have been unusual for an instruction to have been given. That is reinforced by the fact that he said usually it was a case of using one powder or the other, rather than both. Prior to the case of Marion Ross he had not been aware of a case where a fingerprint had been detected with black powder where aluminium powder had totally missed it but he was aware of the use of black powder 'improving' a poor quality mark that had been partially revealed by

8 Mr Kerr 18 June pages 34-36 and FI_0044 paras 20, 50 Inquiry Witness Statement of Mr Kerr
9 Mr Hunter 10 June page 108
10 FI_0037 paras 34-35 Inquiry Witness Statement of Mr Thurley and Mr Thurley 10 June page 29ff
11 Mr Thurley 10 June pages 24-25
12 FI_0037 para 35 Inquiry Witness Statement of Mr Thurley and Mr Thurley 10 June page 29
13 Mr Moffat 11 June pages 36-41 and FI_0003 para 31 Inquiry Witness Statement of Mr Moffat
14 Mr Moffat 11 June page 36
15 FI_0003 para 36 Inquiry Witness Statement of Mr Moffat
16 Mr Hunter 10 June pages 109-110
17 FI_0010 paras 1, 21 Inquiry Witness Statement of Mr Ferguson and Mr Ferguson 10 June page 82
18 Mr Hunter 10 June pages 108-109 and FI_0042 paras 2, 11 Inquiry Witness Statement of Mr Hunter
19 Mr Hogg 17 June pages 9-10
20 FI_0042 para 11 Inquiry Witness Statement of Mr Hunter

aluminium powder.[21] However, the report to the procurator fiscal dated 26 February 1997 by Mr Orr confirms that there was a practice in serious cases of repeating examinations using black powder.[22]

Scientific advice on powder selection

18.10. The Inquiry had the benefit of evidence from two Home Office scientists, Mr Kent and Dr Bleay, in relation to the suitability of the choice of aluminium powder for the initial examination and also regarding sequential examinations.

18.11. Mr Kent, whose research team produced the Home Office advice available in 1997,[23] said that the Home Office issued rigid instructions in other areas of fingerprint chemistry but because of the limited statistical data on the performance of powders they gave guidelines only. He mentioned further research work done since his retirement from HOSDB. [24] Dr Bleay referred the Inquiry to the Scene of Crime Handbook from 1993[25] and the Inquiry had the opportunity to look at an updated leaflet 'Fingerprint Powders Guidelines' dated March 2007.

18.12. The 1993 handbook, as quoted by Dr Bleay,[26] noted that the effectiveness of powdering was variable depending on the chemical and physical nature of the powder, the type of applicator, the care and expertise of the operator and the nature and condition of the surface being examined. It advised examiners to use the powder most sensitive to the latent fingerprint deposit. It indicated that with deposits such as furniture polish or general grime, a less sensitive powder might sometimes be more effective and reduce the chances of clogging or filling in ridge detail.

18.13. Mr Kent suggested that probably most UK police forces at that time were using aluminium as the first powder at a crime scene provided that there were no other problems, no other issues with regard to the crime scene. He added that on greasy surfaces, such as in a kitchen, aluminium powder would tend to smear and the scene of crime officer might choose a granular powder in preference.[27] However, it was thought that metallic flake powders such as aluminium were more sensitive than granular black powder, and where sensitivity was important aluminium was probably the powder of choice[28] but it was difficult to be categoric because it was difficult to say precisely what technique will work under any possible circumstances.[29]

18.14. Dr Bleay emphasised that one also had to take into account the expertise of the scene of crime officer. An officer's operational experience might make the officer believe that a certain type of powder was going to be more effective on a certain

21 FI_0034 para 26 Inquiry Witness Statement of Mr Hogg
22 See chapter 8 para 9
23 Mr Kent 7 July page 24
24 Mr Kent 7 July pages 27-28
25 Dr Bleay 16 November page 138
26 Dr Bleay 16 November pages 138-140
27 Mr Kent 7 July page 25
28 Mr Kent 7 July pages 24-25
29 Mr Kent 7 July pages 26-27

type of surface. He advised the Inquiry that the choice of aluminium flake as an initial powder treatment was not inconsistent with the advice available in 1997.[30]

18.15. The March 2007 leaflet 'Fingerprint Powders Guidelines' contains guidelines based on extensive trials on a range of surfaces and refers to full trial reports (from 2004 and 2006) and other material. A note indicates that aluminium flake, black granular, black magnetic and magneta flake powder performed similarly on many smooth surfaces. It continues: "However it is widely considered that flake powders are more sensitive than granular ones although little evidence is available in the literature to back this up." Black granular powder is noted as suitable for use on some smooth surfaces only. Aluminium flake powder is noted to be the most effective powder on glass but, as it shows similar performance to alternative powders on other smooth surfaces "it may still be the powder of choice as it is easy to apply and develops good contrast marks on most smooth surfaces."[31]

Scientific advice on sequential applications

18.16. Dr Bleay stated that sequential powdering was also not inconsistent with guidance at the time. It may develop more marks overall but even as at 2009, when Dr Bleay gave evidence, not a lot was known about the effects of sequential examination.[32]

18.17. Mr Kent confirmed that a number of people did carry out sequential examinations but it was not a matter on which a significant amount of research had been carried out. Anecdotally he had people tell him that they had found better fingerprints after using black powder after aluminium and vice versa but he had not seen photographic proof of this.[33]

18.18. Dr Bleay thought there was potential for more research in this area.[34] He had observed in a "pseudo-operational situation" that marks could come up with black granular powder after aluminium powder. He carried out a brief experiment using marks from 50 donors and found that 5-10% of marks were first disclosed on a second examination with black powder.[35]

Conclusions on initial powder selection and sequential examinations

18.19. My conclusion is that it was reasonable for Mr Thurley to have decided to use aluminium powder and that his choice did not conflict with the Home Office guidelines of the time.

18.20. I also conclude that there is no evidence to support any suggestion that the sequence of using black granular powder after aluminium powder was inappropriate, or in conflict with any guidance available at the time.

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30 Dr Bleay 16 November pages 137-141
31 Bandey H. Fingerprint Powders Guidelines. Home Office Scientific Development Branch, 2007, 09/07 URL: http://tna.europarchive.org/20100413151426/http://scienceandresearch.homeoffice.gov.uk/hosdb/publications/fingerprint-publications/09-07_-_Fingerprints_Powder5807.html?view=Standard&pubID=454823
32 Dr Bleay 16 November pages 140-141
33 Mr Kent 7 July pages 29-30 and see pages 161-162
34 Dr Bleay 16 November page 141
35 Dr Bleay 16 November pages 142-143

CHAPTER 19

DETECTING AND RECORDING MARKS

Introduction

19.1. Dr Bleay prepared a report for the Inquiry showing that different development processes can affect the appearance of level 2 and level 3 features in marks deposited by the same finger, even under controlled conditions. He concluded that the process used may be one of the factors that influences the features observed, although other factors such as deposition pressure and fingertip deformation will also play a major role.[1]

19.2. This is examined more fully in this chapter alongside associated issues concerning the taking of controlled prints and the photographing of marks.

The detection and recording process

19.3. Fingerprint marks may be detected and recorded at the scene of the crime or by examination of objects in an examination room or laboratory. Y7 was detected and recorded at the crime scene and marks XF, QD2 and QI2 in the then Identification Bureau's (IB) examination room.[2]

19.4. A variety of techniques, compounds and chemicals can be used in the detection or development of marks depending on the surface or material on which the mark has been deposited.

- Y7 was detected by brushing the surface with black powder.
- XF (the mark on a gift tag) was detected by superglue treatment.[3] This process involved putting an item into a sealed chamber and adding chemical (a cyanoacrylate compound) and moisture. After about twenty minutes a coating would adhere to any contaminants on the item.[4]
- QD2 (the mark on a banknote) was found after the banknote was treated with DFO (a chemical treatment Diazafluron-90ne), allowed to dry and then examined using a high-intensity light source not visible to the naked eye known as Quaser.[5]
- QI2 (the cluster on the tin) was found using superglue, basic yellow dye[6] and Quaser light. Mr MacNeil explained that "because of the colours and the texture

1 EA_0088
2 In 1997 the Identification Bureau was part of Strathclyde Police. Now the functions are subsumed within SPSA Forensic Services.
3 FI_0018 paras 34 and 40 Inquiry Witness Statement of Mr MacNeil. Mr MacNeil's reference to the possible use of black magma powder seems to be mistaken in light of Dr Bleay's confirmation that the tag shows evidence consistent with the use of superglue: 16 November, pages 157-158.
4 Mr MacNeil 12 June pages 29-30
5 FI_0018 paras 41-42 Inquiry Witness Statement of Mr MacNeil. Mr MacNeil went on to say that the banknotes were later re-examined, with ninhydrin, and additional marks found (table PS_0016). This was a sequential process of examination and that chemical could have destroyed the marks he had developed – para 51.
6 FI_0018 para 57 Inquiry Witness Statement of Mr MacNeil - Basic Yellow 40 (L40) was a dye which would adhere to any contaminants.

Quaser was really the only/best means of recording evidence on that particular tin." The tin was subjected to a fluorescence examination first to see if anything was visible, then the tin was superglued and dipped in the dye and the marks that were fluorescent using Quaser were photographed.[7]

19.5. At the time a mark was recorded it was given a unique alphanumeric identifier.[8] The prefix Q was assigned to marks obtained by means of a Quaser light examination.[9] When a number of marks were found in close proximity the practice was to label the system of marks and therefore each individual mark would not necessarily be assigned a unique identifier,[10] as was the case with the mark QI2.

19.6. The technique used to detect a mark can determine how it is recorded. Marks found using black powder were photographed at the scene.[11] Marks found with aluminium powder were normally 'lifted' using adhesive tape,[12] and the 'lift' transferred to an acetate film and labelled.[13] The acetate was then printed using a specialist piece of equipment in the IB and the resultant photographic image was used by the fingerprint bureau to identify the fingerprint marks.[14]

19.7. The particular technique involved in the development and recording of the mark may not be readily apparent from the photographic image.[15] This can cause some confusion. For example, Mr Graham, in a statement for the Scottish Government in connection with the civil case, said that when he examined the tin on 7 May 1997 "the box had been very well handled and fingerprints had been developed with fingerprint powder on the bottom, the sides and the lid."[16] Mr Graham accepted that he was incorrect in referring to powder. He said it can be difficult to distinguish between powder and superglue development without microscopic examination or scraping the surface[17] and Mr Gibbens explained that, after supergluing, a white powder would be left on the tin since the superglue takes on "a sort of white crystallised form" and he acknowledged that somebody examining the tin might mistake this residue for powder.[18] Mr Graham said that this made no difference to his conclusions.[19]

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7 Mr MacNeil 12 June pages 33-34
8 Usually the first mark recorded (which may not be the first mark found) was given the identifier 'A', the next 'B' and so on. Once all the letters had been used the alphabet was used again with a numeric suffix so that, for example, the 27th fingerprint mark found was given the identifier 'A2' and the 53rd 'A3' - FI_0037 para 32 Inquiry Witness Statement of Mr Thurley and PS_0019.
9 FI_0018 para 44 Inquiry Witness Statement of Mr MacNeil
10 FI_0037 para 59 Inquiry Witness Statement of Mr Thurley
11 FI_0037 para 30 Inquiry Witness Statement of Mr Thurley
12 FI_0019 para 32 Inquiry Witness Statement of Mr Ferguson, Mr Ferguson 10 June page 100 and FI_0003 para 31 Inquiry Witness Statement of Mr Moffat
13 FI_0037 para 29 Inquiry Witness Statement of Mr Thurley
14 FI_0034 para 27 Inquiry Witness Statement of Mr Hogg and FI_0046 para 70 Inquiry Witness Statement of Mr Mackenzie
15 Mr Grigg 30 September page 8
16 DB_0202
17 FI_0089 para 15 Inquiry Witness Statement of Mr Graham and Mr Graham 9 July pages 100-102
18 Mr Gibbens 12 June page 57–58
19 FI_0089 para 15 Inquiry Witness Statement of Mr Graham and Mr Graham 9 July pages 100-102

Impact of detection technique on appearance of marks

19.8. Dr Bleay's report reproduced eight images from an HOSDB study in 2004-5 using marks obtained from a single donor who was asked to make plain impressions with medium pressure sufficient to deposit a mark but not so heavy as to cause the ridges to be compressed or distorted (though deposition pressure was neither controlled nor measured). The marks included some natural deposits, some contacts made after the finger had been dipped in blood, an inked mark and a greasy one. They were developed using the principal development processes in accordance with the Home Office manual. The images highlight the same three features in the mark and examination of them shows that the interpretation of the nature of the ridge feature (as a bifurcation or a ridge ending) may differ according to which image is being considered. Some of these differences can be attributed to the fact that different development techniques target different fingerprint constituents (DFO - amino acids, Basic Violet 3 - lipids/skin cells, superglue - salts, Acid Violet 17 - blood/proteins), and these constituents are not necessarily evenly distributed across the surface of the finger.[20]

19.9. Mr MacPherson said that in addition to factors such as superimposition, double touch and background interference the appearance of a mark depended on the amount of sweat that had been left and on the developing agent.[21] Mr Zeelenberg agreed that in general the detection technique matters. One technique may adhere to the fatty substance and others more to the moisture.[22] Mr Wertheim indicated that different processes and different touches might produce what appeared to be a very thin ridge in one mark and a thicker ridge in another.[23]

19.10. Mr Grigg mentioned that where superglue is used it is possible that there can be a build-up of the substance that is used to disclose the mark which will lead to a thickening of the ridges in some places, the timing of the process being quite critical. On being asked if he had taken this into account in carrying out his examination of QI2, he said he had taken into account the fact that there were areas where the mark appeared faint and areas where there were very thick black deposits, which he took to either be the background showing through or the development medium over-developing various areas.[24]

19.11. QI2 Ross is considered further below.

Control prints

19.12. Impressions vary, even as between prints taken from the same digit in controlled conditions. The condition of a finger when a print is taken on a ten-print form can affect its appearance, such as whether it is clean or not,[25] as can the way in which the print is taken.

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20 EA_0088
21 Mr MacPherson 27 October pages 21, 57-58, 80-81, Mr MacPherson 28 October pages 117-118 (in connection with the detail of Y7) and Mr Mackenzie 2 October page 137
22 Mr Zeelenberg 8 October page 161
23 Mr Wertheim 23 September page 110
24 Mr Grigg 30 September pages 8-10
25 Mr Mackenzie 2 October page 137

19.13. In Ms McKie's prints the point that was SCRO 4 appeared as a bifurcation in a plain impression and a ridge ending in rolled impressions.[26] Mr Mackenzie considered that on Ms McKie's first and second ten-print forms[27] the rolled impression of her left thumb was smudged, so he used the plain impression.[28] Mr Jeffrey Logan, Head of the Fingerprint Bureau at the Police Service for Northern Ireland (PSNI), said that although a rolled impression should be better because it gives a bigger surface area, the very fact that it is rolled means that there is more chance of it being distorted. If prints are not well taken there can be smeared areas or, if too much ink and pressure is applied, "ten black blobs rather than fingerprints" appear. Although the surface area is smaller with a plain impression it tends to be clearer because it is a single touch down and then off.[29]

19.14. Turning to the prints of Miss Ross, Mr Grigg explained that prints may be taken from a deceased person in a variety of ways depending on the condition of the body. If there is no decomposition prints are often taken by inking the fingers and rolling them onto card or powder can be applied to the fingers and lifted off with adhesive tape. He said that if the process is carried out carefully it should reveal the information accurately but excess powder or ink can obscure detail. Also, the impression can have a broken appearance, as QI2 Ross did, for a number of reasons: the condition of the skin may be such that the ridges are broken; the powder may not have been applied properly; or the powder may be prevented from adhering to the ridges because the finger may be wet through condensation or as a result of other contaminants on the surface.[30]

19.15. Mr Grigg did not know how Miss Ross's prints were taken.[31] Mr MacPherson's evidence was that the prints were obtained by black powder being applied to the fingers and tape applied and lifted and an acetate placed on top of it.[32] My examination of the print form suggests that Mr MacPherson may be correct.

QI2 Ross

19.16. The techniques applied in order to obtain Miss Ross's print and to develop the mark entered the debate concerning the point SCRO 2 in QI2 Ross.

19.17. Mr MacPherson, Mr Wertheim and Mr Zeelenberg were all agreed that SCRO 2 was a bifurcation in both mark and print. Mr MacPherson viewed it as a point of identity but Mr Wertheim and Mr Zeelenberg disagreed pointing out that the two ridges that formed the bifurcation were of equivalent thickness in the mark but of different thickness in the print.[33] Mr MacPherson did not regard the variation in the thickness of the ridges as a difference[34] but, in any event, he suggested that the dissimilarity in appearance could be attributable to the manner in which Miss Ross's prints had been taken. He suggested that there might have been a lack of powder applied at the specific point or the tape was applied and lifted with differential pressure and had not quite lifted the ridge in its entirety. Mr Mackenzie,

26 See chapter 25 para 45
27 Taken on 6 and 18 February respectively.
28 Mr Mackenzie 2 October page 91
29 Mr Logan 16 November pages 83-84
30 Mr Grigg 30 September pages 5-8
31 Mr Grigg 30 November pages 5-6
32 Mr MacPherson 27 October pages 57-58, 29 October pages 74-75 and 3 November pages 124-125
33 See chapter 26 para 45
34 Mr MacPherson 3 November pages 125-126

who disagreed with all three of the other witnesses because his opinion was that there was no bifurcation at this point,[35] nonetheless agreed with Mr MacPherson in attributing the dissimilarity in the thickness of the ridges to a difference in pressure when the tape was used to lift the print.[36]

19.18. The possibility that the dissimilarity in the thickness of the ridges was attributable to the manner in which Miss Ross's prints had been taken was not explored by the Inquiry with Mr Zeelenberg and Mr Wertheim. When they were questioned the focus was on the alternative possibility that the dissimilarity may be attributable to the development technique applied to the mark. Their evidence was that while different development techniques may have different effects on the mark, the application of any one technique should affect all the ridges in the same way.[37] That was at variance with the evidence of Mr Grigg that superglue (the process used on QI2) can produce a thickening of the ridges in some places.[38]

19.19. Beyond noting the potential for debate among fingerprint examiners turning on the processes applied in obtaining the mark and print, I have not considered it necessary to resolve this particular subordinate issue because in my conclusions on QI2 Ross I have preferred the view that in the mark SCRO 2 is a ridge ending[39] and therefore it has been unnecessary to consider the question whether, if a bifurcation, there is an acceptable explanation for the dissimilar thicknesses of the ridges.

Crime scene marks – photography

19.20. SCRO examiners worked by comparing known prints against photographs of lifted impressions or photographed impressions of crime scene marks.[40] Photographs of lifted impressions were produced by the IB and the vinyl lifts were retained by the IB until productions were being prepared for trial when they were mounted in a fingerprint bureau production book and sent to the procurator fiscal.[41] Since none of the marks of concern to the Inquiry were produced by lifts the Inquiry did not investigate procedures surrounding their preparation and use. The Inquiry did investigate the photography of marks such as Y7, QI2 and QD2 developed by powders at the scene of the crime or by chemical procedures in the laboratory.

Taking the photographs

19.21. The marks in the murder investigation were photographed by IB staff. Mr MacNeil or Mr Gibbens photographed the mark XF on the tag for fingerprint comparisons,[42] and the mark QD2 on the banknote.[43] Mr MacNeil explained that they captured a mark such as QD2 by taking a photograph in the same high-intensity light source used to bring it up.[44] Mr MacNeil was reasonably certain that it was he who

35 See chapter 26 para 45
36 Mr MacPherson 29 October pages 74-75, Mr MacPherson 3 November pages 124-127 and Mr Mackenzie 11 November page 108ff
37 Mr Wertheim 23 September page 110 and Mr Zeelenberg 8 October page 161
38 See para 10 above
39 See chapter 26 para 84
40 FI_0046 para 47 Inquiry Witness Statement of Mr Mackenzie
41 FI_0046 para 70-72 Inquiry Witness Statement of Mr Mackenzie
42 FI_0018 para 34 and 40 Inquiry Witness Statement of Mr MacNeil and CO_1986h
43 SG_0691 and SG_0692
44 FI_0018 para 44 Inquiry Witness Statement of Mr MacNeil

photographed the marks on the tin,[45] and Mr Moffat photographed Y7 at the crime scene, using a fixed focus system.[46]

19.22. Those who photograph marks aim to get an actual size image of the mark. It was not the practice of Strathclyde Police IB to put a ruler next to a mark when photographing it[47] and Mr Moffat explained the fixed focus system.[48] The camera was attached to a fixed frame about 12-14 inches long so that each impression was taken from the same distance away. On the bottom of the frame were two small needles three inches apart and these were included in the photograph. When the photographic print was produced the technician could check that the pins on the photographic prints were still three inches apart, ensuring a life-size photograph. In some circumstances, for example if there was insufficient space to use the fixed focus frame, a sticky scale would be placed next to the mark before it was photographed, which allowed the technician to print to life-size.[49]

19.23. When Mr Wilson took photographs of Y7 at the crime scene on 12 February 1997 he used a separate flash gun to get different lighting angles on the mark.[50] Mr Moffat said that common practice among scene examiners was to take only two exposures of each set of prints. He usually took extra exposures if there were only a few marks to give the printers a better negative quality choice.[51]

19.24. Mr Kent said that with a black powdered fingerprint such as Y7 it was possible that different parts of the print might show optimum information with different exposures.[52]

19.25. Dr Bleay included within one of his reports a note on digital and 'conventional film' images, in which he explained that in conventional film cameras because there is no preview of the image the photographer uses his expertise to choose conditions of lighting, lens aperture and exposure time to produce "a correctly exposed" image. Often, he said, it is preferable to take a series of images under slightly different conditions to ensure that one of these images will be at the optimum exposure.[53]

19.26. It is PSNI policy to have marks photographed in a number of different ways with different exposures in order to give fingerprint examiners a range of images to look at. The amount of exposure determines how the mark looks and how the examiner can look at it whenever he examines the mark itself.[54] PSNI have a dedicated fingerprint photographer, trained by the fingerprint trainer,[55] who is able to judge the quality of the mark and determine how many photographs to take.[56] Mr Logan

45 FI_0018 para 58 Inquiry Witness Statement of Mr MacNeil
46 Mr Moffat 11 June page 50ff and FI_0003 para 37 Inquiry Witness Statement of Mr Moffat
47 FI_0047 para 23 Inquiry Witness Statement (Supp.) of Mr Mackenzie
48 Mr Moffat 11 June page 50 and Mr Thurley 10 June page 39ff
49 Mr Thurley 10 June pages 39-41, FI_0037 para 59 Inquiry Witness Statement of Mr Thurley and FI_0019 para 49 Inquiry Witness Statement of Mr Wilson. An example of an image showing pins is FI_1106-01.
50 FI_0019 para 49 Inquiry Witness Statement of Mr Wilson
51 FI_0003 para 42 Inquiry Witness Statement of Mr Moffat
52 FI_0052 para 20 Inquiry Witness Statement of Mr Kent
53 EA_0069 pdf pages 24-26
54 Mr Logan 16 November page 16
55 Mr Logan 16 November page 91
56 Mr Logan 16 November page 18

indicated that he would generally be given more images if the mark was of poor quality.[57]

Developing and printing the photographs

19.27. In his note about conventional and digital images, Dr Bleay explained that, with images from conventional film, adjustments are possible during processing from a negative into a positive print. With digital images, which can be obtained by capturing the image on a digital camera or by converting a conventional negative or positive print by scanning it, adjustments can be made to the digital image and the results of those adjustments viewed on screen before the image is printed out.[58]

19.28. At the time of the Miss Ross murder investigation, films were developed and printed in the photographic department of the IB, then the prints were sent to the fingerprint bureau and the negatives retained in the IB, available for making further prints later if required.[59]

19.29. SCRO could get multiple photographs of a finger mark taken with differing contrasts. As a rule, SCRO would work with whatever photographs come in from the IB but if it was thought that an examiner could do better with a photograph with a different contrast, that could be requested.[60]

19.30. One of the tasks that Dr Bleay undertook for the Inquiry was the production of multiple photographs using the material made available to the Inquiry, as well as the production of new images arising from the investigative work he carried out. His reports detail the processes followed and range of images prepared.[61] For example, as well as enlargements he produced photographic prints at a 1:1 magnification, "representative of the form in which fingerprint images are received by a fingerprint bureau." In some circumstances he adjusted the exposure so that a "well-balanced" photographic print was obtained,[62] or he adjusted the colour balance so that the image appeared as a greyscale image i.e. equivalent to what would be seen on a photographic print from a black and white film negative.[63] He noted that images saved electronically could be adjusted in terms of contrast, brightness, colour saturation etc to satisfy the preferences of each individual fingerprint examiner.[64]

19.31. The Inquiry found that different experts preferred different photographic images of a mark. Mr Paul Chamberlain, the National Scientific Lead for Fingerprints with Forensic Science Services, had experience of images from the same negative appearing different to examiners depending on the way the image was developed.[65] Ms Redgewell and Mr Logan both said that an examiner would look through a series of photographs to ensure he or she obtained the photograph with

57 Mr Logan 16 November pages 17-18
58 EA_0069 pdf pages 24-26
59 FI_0034 paras 45-50 Inquiry Witness Statement of Mr Hogg
60 FI_0031 paras 46 and 48 Inquiry Witness Statement of Mr Geddes
61 For example EA_0067 pdf pages 2-4, 9, EA_0069 pdf pages 7-8, EA_0069 pdf pages 19-20 and EA_0068 pdf pages 3-4
62 EA_0068 pdf pages 2-3
63 EA_0067 pdf page 2
64 EA_0067 pdf pages 2-3 and EA_0068 pdf page 3
65 Mr Chamberlain 18 November page 108

optimum clarity. Once chosen that would be the photograph the examiner would use.[66]

19.32. Mr Kent said that he would generally produce different contrasts of a mark. Although some fingerprint experts liked to work with very black and white high contrast images because they felt certain types of detail were more readily picked out, in fact, he said, using a high contrast could actually remove some of the fine detail so it was good practice to print out a lower contrast with a broader grey scale. In a critical case he would normally recommend printing out at least two or three different versions.[67]

19.33. That coincides with the explanation given by Mr Logan of the circumstances behind his change of opinion in relation to QI2 (Asbury). He was unable to identify the mark in images with high contrast which showed only some of the ridge detail clearly. Among the range of images reproduced from the same negative by the PSNI photographer was one with reduced contrast which proved to be easier to work with.[68]

Reversed image

19.34. In the images of marks that the Inquiry studied the ridges were dark against a lighter background. Development of marks using the chemical ninhydrin produces such an image.[69] QD2 on the banknote was developed using DFO[70] and photographed under illumination from a Quaser. Those processes cause the mark to fluoresce and when initially photographed the ridges appear bright against a darker background. The photograph can be printed in reverse colour to give black ridges for easier comparison with the fingerprint form, a process which Dr Bleay called “grayscale inverted”.[71] This distinction between ninhydrin and DFO formed part of the controversy surrounding the mark QD2.[72]

QI2 and blurring of images

19.35. Mr Wertheim gave evidence to the Inquiry that the image of the mark QI2 that was included in Production 99 prepared for the Asbury trial was an out of focus photograph and that elsewhere in the SCRO productions held by the procurator fiscal he had found another image of the mark which was a “crisp, clear photograph”. He said that it seemed to him to have been “disingenuous” to use an out of focus image for charting purposes when a crisply focused image showing sharper detail was available. He suggested that the use of the out of focus image violated the best evidence rule because the blurring of the image obscured not only the background noise of the picture on the tin but also any level 3 detail such as the numerous incipient ridges that existed in Miss Ross’s print.[73]

19.36. Dr Bleay commented on that evidence observing that it was possible to print a blurred image from an in focus negative and in response to the suggestion that

66 Ms Redgewell 24 November page 128-129 and Mr Logan 16 November page 18
67 Mr Kent 7 July page 119
68 Mr Logan 16 November pages 73-74 and chapter 27 para 39ff
69 Dr Bleay EA_0067 para 3.1.4
70 See para 4
71 Dr Bleay 16 November page 155, EA_0171 slide 46 and EA_ 0068 pdf page 6 and Mr Grigg 30 September pages 8-10
72 See chapter 27 para 26
73 Mr Wertheim 23 September pages 111-112 and 24 September page 37ff

that would be done to mislead the jury he gave the alternative explanation that it could have been done to assist the interpretation of ridge flow by an examiner.[74] He began by observing that the mark QI2 was not visible under normal lighting conditions. The tin had required to be treated with superglue and a chemical called basic yellow 40 and examined under Quaser light. The treatment process causes not only the ridge structure of the mark but also the picture printed on the surface of the tin itself to fluoresce quite strongly and Dr Bleay said that the fluorescence of the background made the mark difficult to visualise. When discussing the printing of the negatives for the purposes of the Inquiry with John Smith, a lecturer in Imaging Science at the University of Westminster and a former forensic image specialist with FSS and LGC Forensics,[75] Mr Smith suggested that he print sharp and blurred images because an examiner might prefer to look at a blurred image. This was something that Mr Smith had done in the past at the request of an examiner. The benefit of blurring was thought to be that it would diminish the background and bring the ridge detail into greater prominence.[76] Mr Smith duly produced sharp (or normal) and blurred prints from the same negative. While accepting that interpretation of image quality was subjective, Dr Bleay's evidence was that to his eye the ridge flow was clearer in the blurred image[77] but Mr Wertheim considered the sharp image to be the clearer.[78]

19.37. When SCRO were asked which enlarged image they wanted to use for the comparative exercise they were offered both the blurred and non-blurred 'Bleay' images but instead they chose a version 'scanned from the original image' prepared by the Metropolitan Police.[79] Consequently the images prepared by Mr Smith did not feature in the comparative exercise but they were available to be studied by the examiners who gave evidence to the Inquiry.

QI2 – Significance of examination of the object

19.38. QI2 illustrates that interpretation of detail can be more than just a product of image quality. It can be influenced by an understanding of the substrate on which the mark was found. It was not evident to the Inquiry that examiners are routinely shown either the object on which the mark is found or a photograph of it.

19.39. During Mr Grigg's oral evidence a white crescent-shaped area on the image of QI2 stretching from the bottom of the image to the core of the mark was shown to him. He was not initially able to say what it was, but on being shown photographs of the tin,[80] which he had not seen before, he considered that it was part of the design printed on the tin.[81] Mr Logan too was able to see during the Inquiry hearing how certain white and dark areas were part of the tin.[82]

Audit trail of image adjustments

19.40. Dr Bleay had been told that historically adjustments were made to images during wet photographic processing, such as colour reversal, contrast enhancement,

74 Dr Bleay 16 November page 150ff and EA_0171 slides 43-47
75 EA_0069 pdf page 8
76 Dr Bleay 16 November pages 166-167
77 Dr Bleay 16 November pages 153-154 under reference to EA_0171 slide 44
78 Mr Wertheim 24 September page 42
79 See chapter 24
80 DB_0176 pdf page 4
81 Mr Grigg 30 September pages 10-14
82 Mr Logan 16 November page 75ff

and "dodging and burning to reduce areas that had been overexposed." Image adjustment is easier to perform with digital images and automated fingerprint identification systems come with enhancement tools, including blurring and sharpening functions, to assist examiners interpreting marks viewed on screen. Since 2001 the Home Office has produced guidance for digital imaging. The original image is set aside and sealed as the master copy and an audit trail must be kept of any adjustments that are made. If a modified image is presented in court in England and Wales the audit trail must be presented so that the jury can see what has been done to the master copy to arrive at the image that is being used.[83] Dr Bleay showed the Inquiry an illustrative example of an audit note.[84]

19.41. Mr Gary Pugh, Director of Forensic Services, Specialist Crime Directorate, Metropolitan Police, also referred to the possibility of using image processing to assist examiners. For example, with a mark on a printed or coloured background a variety of imaging tools may be used to enhance the image so that more information may be seen or the background taken away. He agreed with Dr Bleay that an audit trail was required for such alterations.[85]

Digitally displayed images

19.42. The phase one contributions to the comparative exercise were based on reproductions of original images.[86] The contributions were scanned and stored digitally and then displayed on computer screens at the Inquiry.[87]

19.43. The PSNI's photographer produced four different images of QI2 for Mr Logan and his colleagues and they selected what they believed was the clearest of the four. Mr Logan said in evidence that the selected image had not come up as the clearest on screen, there being a difference in contrast between the version on screen and the original provided by the photographer.[88]

19.44. The medium used to display an image (paper or digital) can itself critically affect the image quality.

Enlargements

19.45. Views differed in relation to the use of enlargements.

19.46. Mr Logan said that the image that PSNI used under glass in identifying QI2 Asbury did not in his view scan well. As a result he would have found it difficult to debate points on the basis of the image on screen, because the quality generally degraded when an image was blown up. He had worked only with the actual size images: "You never, ever make a comparison on the basis of an enlargement."[89] There was value in using images on screen "up to a point" but one had to be careful that the image being viewed might not be of the same clarity as the image on which one had made one's identification.[90]

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83 Dr Bleay 16 November pages 154-157 and EA_0171 slides 43-45
84 EA_0171 slide 46
85 Mr Pugh 24 November pages 126-128
86 See chapter 24
87 See reader's guide
88 Mr Logan 16 November pages 73-74
89 Mr Logan 16 November page 78
90 Mr Logan 16 November page 77ff

19.47. Ms McBride indicated that she would sometimes request a photographic enlargement if a mark was unclear and she considered it preferable to study a photographic enlargement than to examine the mark on a comparator machine.[91] Mrs Redgewell of the Metropolitan Police could also use an enlargement in the event of doubt. She would check the enlargement against the life-size image to ensure that there was no loss of clarity but said that there would not necessarily be a loss of clarity with enlargement, particularly with recent advances in technology.[92]

Lessons to be learned

19.48. On being asked the lessons he would derive from the exercise he had conducted for the Inquiry Mr Logan singled out the importance of the following:

(i) working from original images;

(ii) having a selection of images available, at different contrasts etc;

(iii) sizing – the image must be scaled properly;

(iv) a dedicated fingerprint photographer;

(v) a close working relationship between the photographer and the fingerprint experts; and

(vi) keeping and reviewing marks with insufficient ridge detail.[93]

19.49. To that should be added the need for an audit trail to record the means by which marks have been detected and recorded and, if necessary, prints obtained and any adjustments made to photographic images. Those records should be available to fingerprint examiners when they are comparing marks to keep to a minimum the assumptions that they require to make when forming an opinion. Any critical material from the audit trail should be flagged in the examiner's individual opinion. The audit trail should also be available to the Crown or defence on request.

19.50. By disclosing the adjustments that have been made to images an audit trail would have the incidental benefit of reducing the risk of suspicion that court productions have been manipulated for some illegitimate purpose.

19.51. Consideration requires to be given to the need for examiners to examine the object on which the print was found.

19.52. These matters are addressed further in Part 7.[94]

91 FI_0039 para 22 Inquiry Witness Statement of Ms McBride
92 Mrs Redgewell 24 November pages 131-133
93 Mr Logan 16 November pages 89-96 - this was after the SCRO witnesses had given oral evidence and was not put to them for comment.
94 See chapters 34-41

CHAPTER 20

ADDITIONAL EXAMINATION OF ORIGINAL EXHIBITS

Introduction

20.1. The Inquiry asked Dr Bleay to examine the door-frame and the tin to see if any current method could assist in retrieving any better or new images of the marks. He proposed an examination strategy and recommended techniques that could be applied[1] and he was instructed to proceed.

20.2. Dr Bleay provided a number of reports which included a summary of the examinations carried out.[2] The techniques did not yield any additional detail in the marks of interest to the Inquiry.[3]

The tin

Dr Bleay's investigations

20.3. Dr Bleay examined the tin to ascertain whether additional ridge detail could be found in the mark QI2 or to produce a better image of it. His efforts were unsuccessful. The mark was examined under normal lighting conditions, using Quaser in the blue/violet region of the spectrum[4] and other wavelength ranges, using laser techniques[5] and ultraviolet imaging.[6] Re-dyeing of the tin was also considered but not carried out because it was unlikely to produce a useful result given the background fluorescence.[7]

20.4. During laser examination Dr Bleay found, and photographed, regions of ridge detail on the bottom of the tin where no coloured printing was present but advised that none of these regions would be considered sufficiently large for labelling and that they might have already been visible during Quaser examination.[8]

20.5. Examination of the inside of the tin revealed some fragments of ridge detail. These were gel lifted and photographed. While it might have been possible to swab the interior of the tin for DNA this approach was not pursued because a DNA profile of Miss Ross was not available for comparison and it was known that the tin was in Mr Asbury's possession.[9]

20.6. Ultraviolet imaging of the exterior of the tin produced (1) a possible enhancement of the image of an existing mark (QJ2), and disclosure of (2) a further mark just below the label for QJ2 and (3) a very faint mark near to QG2.[10] Dr Bleay suggested that the first two might benefit from re-examination by a fingerprint expert.[11]

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1 EA_0067
2 EA_0089
3 EA_0069 pdf page 9
4 EA_0089 pdf page 22
5 EA_0089 pdf page 22
6 EA_0067 pdf pages 20-21, EA_0069 pdf pages 6 and 9 and EA_0089 pdf pages 22-23 and 35-36
7 EA_0069 pdf page 9 and EA_0089 pdf page 23
8 EA_0069 pdf page 6
9 EA_0090 pdf pages 11-16
10 EA_0068 pdf page 5
11 EA_0090 pdf page 15

Marks on the tin: PSNI comparison

20.7. The Inquiry asked PSNI to examine (1) the new image of QJ2, (2) the mark below it and (3) the gel lift from inside the tin.

20.8. PSNI were initially given life-size images of the first two marks and submitted a report dated 30 October 2009.[12] At a later date they were also given enlargements of the images of these marks and life-size images and enlargements of the third mark and they provided a second report dated 26 November 2009.[13]

1. SCRO had examined the mark QJ2 and had considered it to be fragmentary and insufficient.[14] Having examined both the life-size new image and an enlargement of it PSNI was of the view that it still contained insufficient ridge detail for identification purposes.

2. SCRO had not examined the mark found under QJ2. It was compared with the prints of Miss Ross and Mr Asbury. Of the three officers initially involved Mr Logan's conclusion was that it was unidentified. A second officer (Ms Green) found some points in agreement with the right forefinger of Miss Ross but also apparent points in disagreement and was unable to make an identification. The third officer (Mr Thomson) also found some similarity with the right forefinger of Miss Ross but was unable to come to a firm conclusion and therefore the mark remained unidentified. It remained unidentified when four officers examined the enlargement.

20.9. The life-size photographs of the gel lift were addressed in the report dated 26 November 2009 and were judged to have insufficient ridge detail for comparison.[15]

The door-frame

20.10. Dr Bleay examined the door-frame using laser and Quaser techniques to ascertain if any additional ridge detail could be revealed for marks Y7 and Z7. He was unable to enhance the ridge detail.[16]

20.11. Examination of the door-frame using a bright white LED light source revealed four areas of ridge detail some of which had been noted during the initial examination but none of which, Dr Bleay indicated, was sufficient to have been labelled.[17] He provided photographic images and illustrated these areas in a report.[18]

20.12. Dr Bleay considered that there would be no benefit pursuing additional chemical treatment of Y7 for fingerprint development because the visible mark represented the full extent of the contact surface.[19]

20.13. With COPFS approval, Dr Bleay did apply a process involving wet powder suspension to the remainder of the door-frame. This process had not previously been applied to the exhibit. Several areas of additional ridge detail were revealed

12 NI_0012
13 NI_0011
14 DB_0003 pdf page 25
15 NI_0011
16 EA_0069 pdf page 5 and EA_0089 pdf page 7
17 EA_0069 pdf page 4
18 EA_0069 pdf pages 12 and 13, Figures 1-4
19 EA_0089 pdf page 7 and EA_0090 pdf page 1

during this treatment and a series of photographs taken.[20] Two examiners at the Metropolitan Police examined those areas of ridge detail which the Metropolitan Police assessed as suitable for comparison, namely the ridge detail in three photographs labelled 70, 73 and 74, comparing them against the prints of Ms McKie, Mr Asbury and Mr Gray. The examiners concluded that the areas of ridge detail in the photographs were not made by any of these individuals.[21]

Y7 – DNA

20.14. Dr Bleay raised the possibility of DNA recovery from Y7 and advised that a DNA expert should be consulted.[22]

20.15. Advice was taken from Andrew McDonald of Cellmark Forensic Services, a laboratory accredited for such work. From the outset it was recognised that there was a risk of contamination when Ms McKie had visited the house and viewed Y7 on 14 and 18 February 1997 and when a label bearing her signature was attached to the door-frame on the second occasion.[23] The advice received confirmed that there was a number of practical problems. Firstly, swabbing for DNA would result in the destruction of the mark. Secondly, the chances of extracting a profile (full or partial) were said to be very low for a number of reasons: the small amount of DNA usually in fingerprints, the number of different treatments that had been applied to the door and the mark, the length of time since the mark was deposited (DNA degrades over time) and the conditions in which the door-frame had been kept during this time (which could have caused damage to any DNA which may have been present). Thirdly, even if DNA were to be found, it could not be said whether it came from the mark and not the underlying material.

20.16. I decided not to proceed because swabbing would result in destruction of the mark, the chance of extracting a profile was said to be remote and if obtained the weight that could have been given to it would have been limited because of the opportunity for contamination.

Crown Office informed

20.17. The Inquiry passed Dr Bleay's reports and the material concerning the additional ridge detail to Crown Office because of any possible relevance to the investigation into the murder of Miss Ross. COPFS informed the Inquiry that they had instructed SPSA to examine the additional marks; that the results of the SPSA examinations of the door-frame were consistent with the findings of the Metropolitan Police; and that the results of the SPSA examinations on the tin were consistent with those of PSNI except that the SPSA examiners found that mark QJ2 was suitable for comparison purposes and compared it with the prints of Miss Ross and Mr Asbury with a negative result.[24]

20.18. COPFS made available to the Inquiry[25] a copy of the report they had received from SPSA.[26] Two experts had examined each of: the ridge detail inside the tin,

20 EA_0068 pdf pages 5-6 and EA_0089 pdf page 7
21 MP_0010 and MP_0011
22 EA_0068 pdf page 10
23 See chapter 7
24 CO_4510
25 CO_4517
26 CO_4519

mark QJ2 on the outside of the tin, the mark beneath QJ2, and the impressions on photographs 70, 73 and 74 on the door-frame. Those impressions considered suitable for comparison were checked against the prints of Miss Ross and Mr Asbury (in the case of the tin), and Miss Ross, Mr Asbury, Ms McKie and Mr Gray (in the case of the door-frame) with a negative result and one of the examiners also searched four of the impressions on Ident 1, the automated fingerprint recognition system, with negative results.

20.19. Subsequently COPFS informed the Inquiry that further investigations into these marks had been instructed.[27] On completion of the work COPFS reported that the marks remained unidentified. COPFS observed, and Dr Bleay has agreed, that it cannot be determined whether the additional marks found on the door-frame were present at the time of the original investigation or deposited in subsequent handling of the exhibit.

20.20. COPFS made the same comment about the new marks found on the tin.[28] Dr Bleay has informed the Inquiry that, as far as the tin is concerned, he had applied different techniques to provide better contrast between the background and the marks that had been developed at the time of the original treatment with superglue. He had not applied a new development process and therefore it was unlikely that the marks were the result of subsequent handling. The Inquiry has not pursued that matter further because the consensus is that, whenever these marks on the tin were deposited, they have not been identified.

27 CO_4513
28 CO_4526

Part 3

The SCRO Fingerprint Bureau

Part 3

The SCRO Fingerprint Bureau

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CHAPTER 21

THE SCRO FINGERPRINT BUREAU AND TRAINING OF FINGERPRINT EXAMINERS

Introduction

21.1. This is the first of three chapters about the Glasgow fingerprint bureau at the time of the events of 1997-1999.

21.2. This chapter outlines the organisation and considers the training and development of fingerprint staff, arrangements for monitoring competence, workload and working conditions, and perceptions of the bureau.

The Scottish Criminal Record Office

21.3. The Glasgow fingerprint bureau was part of the Scottish Criminal Record Office.[1] The Scottish Criminal Record Office had been established in 1960 and it was a common police service for all eight Scottish police forces.[2]

21.4. The Glasgow bureau was one of a number of fingerprint bureaux in Scotland.

21.5. The governing body that oversaw the Scottish Criminal Record Office was the SCRO Controlling Committee, which comprised the chief constables of the eight Scottish police forces and representatives from the Scottish Criminal Record Office and the Scottish Office. By convention it was chaired by the chief constable holding office as President of the Association of Chief Police Officers Scotland (ACPOS). Chief police officers (or deputies) from the eight forces, with representatives from SCRO and the Scottish Office, attended the SCRO Fingerprint Standing Committee which was chaired by a chief constable.

21.6. From 1999 these committees became the Executive Committee and the Management Committee. The first was chaired by the President of ACPOS and comprised the eight chief constables, Her Majesty's Chief Inspector of Constabulary for Scotland and representatives from the Scottish Executive[3] and COSLA,[4] while the second was chaired by a representative of the Scottish Executive and comprised representatives from the eight police forces and COSLA and the Director and Deputy Director of SCRO.[5]

21.7. The primary functions of the Scottish Criminal Record Office were to provide a computerised criminal record system and fingerprint verification and identification facility for all eight Scottish police forces. In practice six of the eight police forces had their own fingerprint bureaux and the Scottish Criminal Record Office

1 Later (2001) the bureau became part of the Scottish Fingerprint Service (SFS) and in April 2007 SFS became part of the Scottish Police Services Authority
2 Para 1.3 of Scottish Criminal Record Office - 2000 Primary Inspection, a report by Her Majesty's Inspectorate of Constabulary, published 24 May 2001, URL: http://www.scotland.gov.uk/hmic/docs/scro-00.asp; and FI_0050 para 2 Inquiry Witness Statement of Sir William Rae
3 It succeeded the Scottish Office upon devolution in 1999
4 Convention of Scottish Local Authorities
5 SG_0375 para 2.7

fingerprint bureau (i.e. what is generally referred to in this Report as 'SCRO') provided a service for Strathclyde Police and also Dumfries and Galloway.[6] Occasionally other forces sent crime scene marks to the Glasgow bureau for comparison and/or search in its finger and palm print collections.[7]

21.8. The Director of the Scottish Criminal Record Office was a police chief superintendent and the Head of the Fingerprint Bureau was a chief inspector, not a fingerprint examiner.[8] Strathclyde Police did not have management responsibility for the Scottish Criminal Record Office but in 1997-1999 it was located in Strathclyde Police headquarters and the Strathclyde Joint Police Board had responsibility for its support staff.[9]

21.9. The post of Assistant Chief Fingerprint Officer was created in 1996 and re-designated as Deputy Head of Bureau around 1998. This post was held by Mr Robert Mackenzie. There was no Chief Fingerprint Officer as the Head of the Bureau was a police officer.[10] In 1997 SCRO had 34 fingerprint officers.[11]

Staff training and development

Trainee examiners

Training in the 1970s

21.10. Mr Mackenzie joined as a trainee in 1967. Two of those who identified the marks in this case, Mr MacPherson and Mr Stewart, joined the organisation in 1970. Mr Dunbar joined in 1971 and Mr McKenna in 1977.

21.11. Their training was over seven years and was all delivered in-house with examinations set by the bureau. Learning was encouraged "very much as a hands-on experience".[12] At this time the Glasgow fingerprint bureau trained people for Scotland, other parts of Great Britain and elsewhere.[13]

21.12. The outline of the training programme can be taken from Mr MacPherson. During the first two years the training mostly involved manual searching in a collection of fingerprints of convicted persons. This 'main collection' had around 300,000 sets of fingerprints, and the job included examining and classifying incoming fingerprint forms and searching them against the collection. The work "allowed trainees to hone their skills in fingerprint pattern recognition." Trainees also carried out 'ten-print to ten-print' comparisons for example when a dead body required to be identified. After the first two years, a trainee moved on to scene of crime work, comparing finger and palm prints from the collection against marks left by

6 SG_0375 para 1.1.4
7 FI_0055 para 12 Inquiry Statement of Mr MacPherson
8 In 1997 Chief Superintendent Hugh Ferry was the Director of SCRO and Chief Inspector William O'Neill was Head of the Fingerprint Bureau. Detective Chief Superintendent Harry Bell joined SCRO as Director in November 1998. Mr O'Neill was succeeded in March 1998 by Chief Inspector Christopher Griffiths.
9 SG_0375 para 2.5
10 FI_0046 Inquiry Witness Statement of Mr Mackenzie
11 SG_0375 para 4.2
12 FI_0036 para 7 Inquiry Witness Statement of Mr Stewart
13 FI_0036 para 3 Inquiry Witness Statement of Mr Stewart

perpetrators of crime.[14] Examinations were held during the first five years and then an officer practised for a further two years before he could give evidence in court.[15]

21.13. The trainees at SCRO, unlike those in other bureaux in Scotland,[16] specialised in fingerprint comparison work and were not involved in crime scene examinations but as part of that training they did learn how scene of crime officers found and recorded fingerprints, and how the surface on which a print was left could affect the way in which a fingerprint expert would analyse it.[17] Mr Mackenzie referred to a three month period of secondment to the Identification Bureau for training in crime scene examination techniques.[18]

The 1980s

21.14. Mr Halliday became a trainee in 1979, Mr Bruce in 1982, Mr Foley in 1983, Ms McBride in 1984 and Mr Geddes and Mr Padden in 1988.

21.15. In the 1980s, the training period was reduced to five years[19] but remained in-house. "Prior to 1993, SCRO fingerprint staff were all trained 'in-house' and did not receive any external training input."[20]

21.16. Two comparative examples may be given. Mr Grigg, a fingerprint training instructor since 1997 at the National Policing Improvement Agency (formerly the NTC), Durham, also trained in the 1980s. He joined Norfolk Constabulary as a trainee fingerprint expert in 1981 and qualified in 1986. His training involved training "on the job" and attendance at two courses at Hendon Police College[21] as did that of Mr John McGregor, a fingerprint examiner in Aberdeen, who also trained in England at this time.[22]

Training in the 1990s

21.17. In September 1991 the Glasgow bureau was the first in the United Kingdom to introduce the Automatic Fingerprint Recognition system (AFR).[23] Staff had to learn how AFR worked and develop processes for its operation. AFR superseded the searches in the manual collections. These were now done by computer so the training changed to compensate.[24]

21.18. Mr Halliday, who was the AFR Manager in 1997, said that before the advent of AFR searching the manual collection, while labour intensive, was very good experience

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14 FI_0055 paras 4-7 Inquiry Witness Statement of Mr MacPherson
15 FI_0055 paras 2 and 9 Inquiry Witness Statement of Mr MacPherson and FI_0053 para 4 Inquiry Witness Statement of Mr Dunbar
16 FI_0055 para 7 Inquiry Witness Statement of Mr MacPherson
17 FI_0036 para 4 Inquiry Witness Statement of Mr Stewart
18 FI_0046 para 7 Inquiry Witness Statement of Mr Mackenzie
19 e.g. FI_0055 para 28 Inquiry Witness Statement of Mr MacPherson and FI_0046 para 85 Inquiry Witness Statement of Mr Mackenzie
20 SG_0375 para 7.2.1
21 FI_0081 para 4 Inquiry Witness Statement of Mr Grigg. Hendon is the Metropolitan Police's training facility.
22 FI_0112 paras 1-4 Inquiry Witness Statement of Mr McGregor
23 FI_0055 para 22 Inquiry Witness Statement of Mr MacPherson, FI_0036 paras 17-18 Inquiry Witness Statement of Mr Stewart and FI_0053 para 5 Inquiry Witness Statement of Mr Dunbar. See chapter 2 paras 23-25
24 FI_0011 para 14 Inquiry Witness Statement of Mr Halliday and FI_0046 paras 33–34 Inquiry Witness Statement of Mr Mackenzie

for comparing groups of prints, recognising patterns and the development of searching and comparison skills. Mr Mackenzie thought that officers in place in 1991 had a better grounding in fingerprint comparison due to their experience dealing with volumes of manual comparison work during their training,[25] and Mr Dunbar said that although at the time he trained the programme was not as structured as later formalised courses, trainees arguably gained more experience because the work was all manual.[26]

21.19. Delegations of experts from outside Scotland visited the Glasgow bureau to see how AFR worked[27] and SCRO experts such as Mr Dunbar trained other British fingerprint experts in the system.[28]

21.20. In 1993 Mr Mackenzie was appointed as the first SCRO bureau trainer, and he was asked to ensure that SCRO was matching the programmes of the other main training facilities in the UK. SCRO had not sent people to Durham or Hendon "due mainly to the differences between court proceedings in Scotland and England." Staff members were now sent on courses at Durham to see what the differences were and SCRO management decided that the intermediate level course at Durham would be best suited to the needs of SCRO fingerprint officers' training.[29] The 'intermediate course' was the equivalent of the bureau's training up to four years and also included mock trials, with an emphasis on court preparation and presentation. Mr Dunbar said that in the UK all the teaching was generally from the same documents.[30]

21.21. It was not until after 2000 that SCRO trainee fingerprint examiners were sent on all three courses at Durham.[31] This was as a result of the HMICS September 2000 report.[32]

Training as at 1997

21.22. Mr Dunbar succeeded Mr Mackenzie in 1996. His post of Quality Assurance Officer also carried responsibility for training. The five year training programme included examinations at the end of the first, second and fourth years of training and a final examination, after which a trainee became a fingerprint officer. The emphasis remained on practical training. At the time the bureau was divided into teams that dealt with various geographic areas and after spending time in the ten-print and AFR sections, the remainder of trainees' training would be in the various teams, where they would be 'mentored' by a fingerprint officer. Obtaining expert status was significant in terms of qualification and salary.[33]

21.23. The team leader was responsible for trainees on the team, including allocating and monitoring their work and explaining the theory they were putting into practice, as

25 FI_0046 para 38 Inquiry Witness Statement of Mr Mackenzie
26 FI_0053 para 3 Inquiry Witness Statement of Mr Dunbar
27 FI_0055 para 24 Inquiry Witness Statement of Mr MacPherson and FI_0046 paras 35–36 Inquiry Witness Statement of Mr Mackenzie
28 FI_0053 para 5 Inquiry Witness Statement of Mr Dunbar, FI_0046 paras 35–36 Inquiry Witness Statement of Mr Mackenzie and FI_0036 para 18 Inquiry Witness Statement of Mr Stewart
29 FI_0046 paras 13–15 Inquiry Witness Statement of Mr Mackenzie
30 FI_0053 paras 22-25 Inquiry Witness Statement of Mr Dunbar
31 FI_0046 para 21 Inquiry Witness Statement of Mr Mackenzie
32 FI_0046 para 22 Inquiry Witness Statement of Mr Mackenzie
33 FI_0053 paras 19-38 Inquiry Witness Statement of Mr Dunbar

well as ensuring that the workload was dealt with and the work carried out to the requisite quality.[34]

21.24. The training/quality assurance officer would oversee a trainee's training.[35] A trainee's signature in relation to any crime scene mark did not count towards the four experts required to make an identification.[36] Trainees would attend various necessary external courses such as courses on equal opportunities at Tulliallan.[37]

21.25. The trainee's final, 'expert', examination comprised all aspects of fingerprints and included the history of fingerprints, evidence, relevant legislation, Scots law, and biology in relation to how ridge units are formed. Officers had to prove their competence in this examination in order to qualify. The fingerprint identification element had a 100% pass mark. The examination also included a competency test of searching the AFR system and other aspects of a fingerprint officer's duties (such as the day-to-day running of the office, how one went about the procedures for identification of a mark and the preparation and presentation of evidence), and there was a mock trial. Mr Dunbar marked the expert examinations and they were checked by Mr Mackenzie. Not everyone satisfied every stage of competence at the first attempt.[38]

Training and development of qualified fingerprint examiners

21.26. Newly qualified fingerprint officers would continue to be monitored by the supervisor of the team in which they were placed and their progress reported back to the training department.[39] As an officer progressed and developed, much of his learning would be 'on the job' with staff expected to learn from one another, and read about latest developments, for example using the SCRO library.[40]

21.27. 'Informal training' took place on a day-to-day basis. For example if there was a difficult or interesting mark the fingerprint officers would speak with other officers about it. Officers would also keep themselves up to date by discussing articles of interest and copies of such articles were passed around the office and kept in a folder.[41]

21.28. Fingerprint officers were given 'in-house' training when new developments occurred. When new technology was brought in staff had to complete specific courses, such as an in-house week-long introductory course held for everyone on AFR.[42]

21.29. Seminars were provided from time to time, for example Mr Mackenzie presented a two day course 'Demystifying Palms'.[43] Occasionally external speakers would be

34 FI_0036 para 11 Inquiry Witness Statement of Mr Stewart
35 FI_0055 para 23 Inquiry Witness Statement of Mr MacPherson
36 FI_0053 para 28 Inquiry Witness Statement of Mr Dunbar and FI_0046 para 48 Inquiry Witness Statement of Mr Mackenzie
37 FI_0053 para 37 Inquiry Witness Statement of Mr Dunbar
38 FI_0053 paras 29-36 Inquiry Witness Statement of Mr Dunbar
39 FI_0053 para 39 Inquiry Witness Statement of Mr Dunbar
40 FI_0036 para 19ff Inquiry Witness Statement of Mr Stewart
41 FI_0040 paras 8-9 Inquiry Witness Statement (Supp.) of Ms McBride
42 FI_0046 para 33 Inquiry Witness Statement of Mr Mackenzie
43 FI_0054 para 9 Inquiry Witness Statement of Mr McKenna and FI_0040 para 8 Inquiry Witness Statement (Supp.) of Ms McBride

invited to come and talk to the bureau. Arie Zeelenberg once came to speak, as did Stephen Meagher, Head of the FBI Latent Fingerprint Unit, and Dale Clegg from Australia.[44] Mr Stewart said that as individual experts and as a bureau they were always trying to improve their knowledge and ability. As well as receiving visits from experts, Glasgow experts visited other bureaux and the bureau was used to setting up trials for possible changes.[45]

21.30. It appears that as at 1997 a formal continuing professional development (CPD) process was not in place. Mr Stewart's recollection was that around 1998 a more formal CPD process was introduced, with training becoming more structured and including away days, generally at Tulliallan.[46] HMICS in its September 2000 report found that little provision was made for refresher training for fingerprint experts.[47]

External training attended post qualification

21.31. Some SCRO personnel attended external courses. Mr Dunbar attended courses and obtained various external qualifications in connection with his responsibilities for quality assurance and training including the Bureau trainers' course at Durham (1996) and a Vocational Assessor course (1999).[48]

21.32. Two SCRO officers attended a course on ridgeology given by David Ashbaugh in late 1999 at the NTC in Durham and then disseminated information from this to other SCRO officers. Mr Mackenzie visited the FBI in Washington for a week, arranged by Stephen Meagher, to look at their training methods and the work they had done on third level detail.[49]

21.33. Mr McKenna, who in 1997 was a team leader, was given additional training as he took on more managerial responsibility. For example he attended courses by the Institute of Leaders and Managers and undertook training on process mapping and business continuity and change.[50] He attended an external Scottish Fingerprint Conference at Tulliallan, but not external fingerprint conferences such as the Fingerprint Society Conference.[51]

21.34. It appears that the opportunity for staff generally to attend external seminars and conferences was limited.[52] Ms McBride said that she did not go on many external courses. Normally there were not enough funds to send staff on all of the external courses requested. A few people would go to fingerprint conferences and some staff would pay to attend themselves.[53] By the mid 1990s the cost of one person attending would be met by the organisation and the practice was for staff to split the funding among those attending, with the balance being met by the individuals. Those who could not go "missed out", Mr Stewart thought, because conferences

44 FI_0039 para 11 Inquiry Witness Statement of Ms McBride, FI_0046 para 20 Inquiry Witness Statement of Mr Mackenzie. The FBI presentation was on work he had done in relation to third level detail and ridgeology.
45 FI_0036 para 25 Inquiry Witness Statement of Mr Stewart
46 FI_0036 para 27 Inquiry Witness Statement of Mr Stewart
47 SG_0375 para 7.5.1
48 FI_0053 para 13 Inquiry Witness Statement of Mr Dunbar
49 Mr Mackenzie 30 September pages 25-26
50 FI_0054 para 10 Inquiry Witness Statement of Mr McKenna
51 FI_0054 para 12 Inquiry Witness Statement of Mr McKenna
52 See e.g. FI_0054 para 12 Inquiry Witness Statement of Mr McKenna
53 FI_0039 para 12 Inquiry Witness Statement of Ms McBride

were invaluable not only for the formal presentations but also for the informal discussions that took place among working experts.[54]

The monitoring of examiner competence

21.35. By 1995 the Director of SCRO and the head of the bureau wanted to set up competency testing for fingerprint bureau expert staff. This came "on the back of" the Evett and Williams report in the 1980s which suggested regular competency testing, blind tests and dip sampling of cases. 'Dip sampling' (the random checking of work) was introduced, followed by competency testing.

21.36. SCRO was aware of only one commercial company marketing competency test products in the forensic field at this time, and Mr Mackenzie was instructed to utilise material available at SCRO. Before each series of competency tests was introduced, staff at Durham were asked to assess that they were a fair test of examiners' skills. No other fingerprint bureau in England and Wales at this time was undertaking competency testing like this until a pilot scheme was eventually rolled out in bureaux in the north west of England a couple of years later. Testing material which had been used in the Glasgow bureau was passed on to other fingerprint bureaux in Scotland for the purpose of testing their staff. Around the time of the Shirley McKie case the last set of in-house competency tests was prepared. Competency tests were confidential; no one other than the actual person being tested knew the results of his or her own tests.[55]

21.37. These tests involved preparation of eight cases based on solved cases with a range of identifications, marks insufficient for comparison and negative results. There were no time limits. Staff were encouraged not to discuss the content of any tests. During the in-house testing there was never a misidentification made by a member of SCRO staff within the bureau, although on occasions an officer might incorrectly classify a mark as insufficient for comparison. If staff did not satisfy a level of competency at the first test then there would be an opportunity to sit a second test.[56]

21.38. As well as competency testing, all experts in SCRO had their work second checked by their peers, which Mr Stewart described as "a greater test of competence than any other test" and in addition any identified marks were checked by three other experts after the initial identification was made.[57]

Workload and working conditions

21.39. This Report is not considering in detail the workload or working conditions of the Glasgow bureau, which have been addressed by other reviews. The bureau was at the relevant time located in the headquarters of Strathclyde Police. It moved to new purpose-built premises in 2000 which were considered to be an improvement,[58] and to have helped foster an independent corporate identity for SCRO.[59]

54 FI_0036 paras 21-22 Inquiry Witness Statement of Mr Stewart
55 FI_0046 paras 15-19 Inquiry Witness Statement of Mr Mackenzie
56 FI_0053 paras 45-47 Inquiry Witness Statement of Mr Dunbar
57 FI_0036 para 15 Inquiry Witness Statement of Mr Stewart
58 Mr Luckraft 20 October page 41
59 Mr Bell 3 July pages 67-68 and FI_0043 para 3 Inquiry Witness Statement of Mr Bell

21.40. The Glasgow bureau was busy. It was said to be overworked and understaffed.[60] Electronic capture of arrestees' fingerprints using 'live scan' devices was introduced in April 1997.[61] As these were available electronically on a 24 hour basis, the bureau changed from an 8am to 8pm working day to a 24 hour, seven day a week facility, with a knock on effect on case work, staffing and training. Additional staff had to be recruited and trained to address substantial backlogs of scene of crime mark caseloads which built up as a result.[62] The bureau carried a number of staff vacancies.[63]

Perceptions of the bureau

21.41. The SCRO examiners told the Inquiry of the high reputation of the bureau and of individual examiners. Mr Mackenzie said that the bureau was a market leader in the UK in respect of fingerprint training, testing and quality assurance and was at the time the only bureau to have regular testing of staff.[64] Mr Padden said that "we had been told by others in the past that we were the best fingerprint bureau in the world" and that "The experts that were involved in the [Asbury/McKie] case…are hugely respected. In particular Hugh MacPherson had a reputation of being the top guy in the bureau, based on the quality of his work."[65]

21.42. Ms McBride said "The general view in SCRO was that our experts were very well trained …the view was that the standard of our bureau was second to none which was supported by the comments of other bureaux staff from England and elsewhere. The Evett and Williams study suggested that this was the case. Other fingerprint bureaux would adopt our processes."[66]

21.43. Mr Stewart said that in his experience other bureaux would declare marks fragmentary and insufficient that SCRO could compare.[67] The examiners in the bureau specialised in fingerprint comparison as their full-time remit[68] and Mr MacPherson cited this specialisation as a reason for their ability to make identifications where others could not.[69]

21.44. The belief that SCRO examiners, or at least the more experienced among them, could identify marks that other bureaux would discard as fragmentary and inconclusive is discussed in chapter 28.

21.45. SCRO was held in high regard by others outside the bureau. Mr Grigg considered SCRO to be a "professional and very competent" bureau.[70] He did not have direct dealings with SCRO at the relevant time but had trained some of their staff and

60 FI_0054 para 56 Inquiry Witness Statement of Mr McKenna
61 SG_0375 para 5.4.2
62 FI_0046 paras 29-34 Inquiry Witness Statement of Mr Mackenzie
63 SG_0375 para 4.1
64 FI_0046 para 197 Inquiry Witness Statement of Mr Mackenzie
65 FI_0008 para 14 Inquiry Witness Statement of Mr Padden
66 FI_0039 para 13 Inquiry Witness Statement of Ms McBride
67 FI_0036 para 63 Inquiry Witness Statement of Mr Stewart
68 Most of the fingerprint bureaux in Scotland had dual role officers who carried out scene of crime examination as well as fingerprint comparison.
69 FI_0055 paras 32-33 Inquiry Witness Statement of Mr MacPherson
70 FI_0081 para 9 Inquiry Witness Statement of Mr Grigg

had met Alan Dunbar for whom he had "high regard". He had no reason to think anything other than highly of SCRO.[71]

21.46. There were other views.

21.47. Mr Sheppard, who was Head of NTC Fingerprint Training from 1996 to 2005,[72] said that he had formed the impression that SCRO did not have a culture that encouraged experts to work independently and draw their own conclusions. This was derived from two experiences. Firstly, a two day visit to SCRO in 1990 to look at the AFR system when he formed the impression that "SCRO was an excessively hierarchical organisation and that independence of thought was not encouraged." Secondly, there was his experience with students (i.e. trainee fingerprint examiners) from SCRO attending the NTC who, when shown difficult marks, would often say that they would not draw their own conclusions but would pass the mark on to a more experienced officer, from which he inferred "there was a great deal of peer pressure and that it was alien to challenge the conclusions of others."[73]

21.48. The evidence of Mr Richard Luckraft, who worked in the Glasgow bureau from January 2000 to March 2001, is discussed in chapters 23 and 28.

21.49. The HMICS September 2000 report discloses that SCRO was the biggest fingerprint bureau in Scotland and the fourth largest in the UK. The report advised that historically the bureau had been held in high regard by other experts, though it did appear to have "an 'internalised' culture".[74] This was a comment on the emphasis on in-house training, the failure until relatively recently to recruit externally trained qualified officers and the fact that senior posts were not always advertised externally and the report made recommendations about the need for a more "open and transparent culture" within the organisation as a whole.[75]

71 FI_0081 para 10 Inquiry Witness Statement of Mr Grigg
72 FI_0082 para 3 Inquiry Witness Statement of Mr Sheppard
73 FI_0082 paras 71-72 Inquiry Witness Statement of Mr Sheppard and Mr Sheppard 8 July pages 174-5
74 SG_0375 para 8.14.1
75 SG_0375 para 8.14.2

CHAPTER 22

PROCEDURES OF SCRO IN 1997

Introduction

22.1. This chapter gives an overview of the relevant working practices and procedures of SCRO[1] in 1997. By way of background information it begins by describing the possible results from examination of marks, and the distinction between volume crime and special cases.

22.2. The working arrangements are then outlined with particular reference to the associated documentation and the chapter concludes with a note about the availability of written procedures.

Results of examination of marks

22.3. The principal findings that SCRO could make were: 'fragmentary and insufficient', 'identification', 'elimination' and 'negative'. Such findings had to be verified, that is checked by one or more other fingerprint examiner.

Fragmentary and insufficient

22.4. When marks from a crime scene were received, an examiner would check the documentation and then assess which marks were 'fragmentary and insufficient' ('ins').[2] The examiner would assess whether a mark was good enough to allow comparison.[3] If he considered that it contained insufficient detail to allow for comparison or if it suffered from considerable distortion or superimposition or lacked clarity, or a combination of these factors, it would be termed 'fragmentary and insufficient' and set to one side. This would happen with some marks straight away and they would not be compared with known prints. Other marks might be deemed 'fragmentary and insufficient' only after an attempt at comparison.[4]

22.5. The conclusion that a mark was 'fragmentary and insufficient' as at 1997 required the confirmation of two experts. This was later reduced to one.[5]

Identification

22.6. An identification or 'ident' was made when a mark was compared to the fingerprint form of a suspect and identified as having been made by the suspect. In 1997, identifications had to be separately determined by four fingerprint examiners.[6]

22.7. Other bureaux required only three officers to make an identification. The additional officer was in place as an extra safety measure and also to allow for two experts to be on holiday at any one time and still have substitute witnesses to provide

1 Using 'SCRO' as shorthand for the Glasgow fingerprint bureau
2 FI_0055 para 43 Inquiry Witness Statement of Mr MacPherson and FI_0046 para 47 Inquiry Witness Statement of Mr Mackenzie
3 FI_0055 para 44 Inquiry Witness Statement of Mr MacPherson
4 FI_0036 para 63 Inquiry Witness Statement of Mr Stewart
5 FI_0036 para 64 Inquiry Witness Statement of Mr Stewart
6 FI_0039 para 26 Inquiry Witness Statement of Ms McBride

corroborated evidence of the identification in court.[7] Mr Mackenzie understood that it was a higher requirement than most other bureaux in the UK who used three. After the HMICS 2000 review of the fingerprint bureau this requirement was reduced to three.[8]

Elimination

22.8. Eliminations (or 'elims') were marks identified as having been made by persons who had reason to be at the locus or persons who were not suspects, such as police officers who had attended there. In 1997 two fingerprint examiners were required to make an elimination. After 1997 but before 2002 one examiner was required to make an elimination.[9]

Negative

22.9. A 'negative' finding was made when a mark was compared to a person's prints and it was determined that that person did not make the mark. In 1997 a negative finding had to be made by two examiners.[10] This was later revised to one examiner.[11] None of SCRO's worksheets had a field for recording negative findings in respect of a mark.

Volume crime cases and special cases

22.10. Fingerprint work was documented on a range of forms, worksheets and other papers.[12] The documentation and processes differed according to whether the case was a volume crime case or a special case.

22.11. Special cases were the most serious crimes such as murder or rape. Volume cases were crimes such as house-breaking or motor crime. Special cases tended to differ from average volume crime cases as more crime scene marks would be submitted to the bureau.[13] The process involved in dealing with volume crime cases was set out for the Inquiry in witness statements[14] and is not considered further as the murder of Miss Ross came within the category of a special case.

22.12. From 1994 the bureau was organised into six geographical teams. Special cases, such as murders, were allocated to the relevant geographical team. Prior to this, special cases were dealt with by a dedicated team staffed by the more experienced experts who, according to Mr Stewart, "by the benefit of their greater operational experience were able to carry out comparisons at a faster pace than their less experienced colleagues and hopefully to a higher standard of accuracy."[15]

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7 FI_0053 para 68 Inquiry Witness Statement of Mr Dunbar
8 FI_0046 para 49 Inquiry Witness Statement of Mr Mackenzie
9 FI_0039 para 27 Inquiry Witness Statement of Ms McBride. Current requirements are discussed in chapter 36.
10 FI_0039 para 29 Inquiry Witness Statement of Ms McBride
11 FI_0036 para 65 Inquiry Witness Statement of Mr Stewart
12 FI_0046 para 42ff Inquiry Witness Statement of Mr Mackenzie
13 FI_0046 paras 45-46 Inquiry Witness Statement of Mr Mackenzie and FI_0039 para 42ff Inquiry Witness Statement of Ms McBride
14 e.g. FI_0036 para 40ff Inquiry Witness Statement of Mr Stewart
15 FI_0036 paras 34, 35, 252 Inquiry Witness Statement of Mr Stewart where he also speaks to the re-formation of the team from 1998 or 1999.

22.13. Special cases were resource intensive. Mr Stewart said that they had to be processed quickly and accurately as "everyone wishes to see serious crimes resolved quickly" but examiners took as long as was required and were taught to work properly; that is to say, "professionally and with integrity".[16]

22.14. When a new case came in it would be assigned to one of the examiners in the relevant team. When the Marion Ross case came in Mr MacPherson was asked to take it on, assisted by Mr Geddes. In a case like this with a large number of marks other experts would assist.[17]

Working Arrangements

The receipt of marks

22.15. The fingerprint bureau would receive bundles of photographs of marks from the Identification Bureau. As mentioned in chapter 19, these would be photographs of both 'impressions' ('imps') and 'lifts', each with an individual 'identifier' (e.g. Y7, QI2) which was then used in the paperwork at SCRO.

Documentation: lack of sufficient audit trail

22.16. The documentation used by SCRO fingerprint examiners is now described but it should be highlighted at the outset that the documentation gives a less than complete audit trail of the work undertaken.

Documents from the Identification Bureau

22.17. Two principal documents accompanied the bundles of photographs: Form 13B and the marks worksheet.

Form 13B

22.18. Form 13B for a series of marks had information completed by scene of crime officers (SOCOs). DB_0251 is the set of Form 13Bs for the Marion Ross murder investigation. Each Form 13B was in triplicate and the Identification Bureau kept the bottom sheet as a copy and passed the other two sheets to SCRO.[18] The Form 13B was a "means of communicating instructions and information to the Fingerprint Bureau".[19] It was a brief document that included elementary information: a note of the crime reference number, the crime, the locus, and the names of the SOCOs who found the marks in question. There were fields for noting where the articles were examined and where the marks were found, and for listing any 'eliminations' required or suspects.

The marks worksheet

22.19. The marks worksheet also came from the Identification Bureau and included information they provided. DB_0003 is the worksheet for the Marion Ross murder investigation. It listed the marks individually, with a brief description of where each was found and the date of the Identification Bureau's examination. Mr MacPherson indicated that the information about where a mark was found was useful to SCRO's work. It would, in some cases, help a fingerprint expert work out which digit had

16 FI_0036 para 75 Inquiry Witness Statement of Mr Stewart
17 FI_0055 paras 34, 40, 48 Inquiry Witness Statement of Mr MacPherson
18 Mr MacNeil 12 June pages 1-4
19 FI_0056 para 4 Inquiry Witness Statement (Supp.) of Mr MacPherson

made the mark.[20] SCRO would complete the worksheet by noting against a mark the date they received it, and then the result of the examination of it. The worksheet does not record the date of the examination, the examiners who had worked with the mark or the basis upon which any particular conclusion was reached.

The receipt of prints

22.20. SCRO prepared elimination worksheets[21] and suspect worksheets[22] listing the names of persons against whose prints marks in a case were to be compared. The names were provided by the police. Suspect worksheets would list suspects in a case. Elimination worksheets would list other persons such as police officers and civilians. These sheets did not show results of comparisons but did at least record the initials of the first examiner and a checker with the relevant dates.

22.21. It was the job of the police investigators to produce elimination prints for SCRO.[23] They would take elimination prints of persons who had legitimate access to a scene of crime or had come into contact with articles to be eliminated from an inquiry, and supply these ten-print forms to the bureau.[24]

The examiners' process in brief

22.22. Normally SCRO did not see the item on which the mark had been found and examiners compared prints with photographs of marks. There were some exceptions. Mr Geddes told the Inquiry that sometimes it was helpful to see the article on which the mark was left to orientate the mark[25] and, as mentioned in chapter 4, two of the SCRO staff viewed Y7 and other marks at the crime scene.

22.23. Marks were generally worked on in bundles, which reduced in size as a determination for each mark was made since, when they were determined, the marks were put in the appropriate 'crystal bag' (a 'see-through' envelope which could be written on) for fragmentary and insufficient, eliminated as, identified as etc. [26]

22.24. The first step would be to decide, where possible, which marks in a bundle were fragmentary and insufficient and they were removed from the bundle of photographs and placed in their own 'crystal bag' to be second checked by another expert. Once checked, the 'fragmentary and insufficient' result would be marked on the marks worksheet in the result column.[27]

22.25. The next step would be to compare the remaining marks in the bundle to the prints. An examiner would take a bundle of marks, and look at the elimination sheets to see whose prints were to be checked against those marks.[28]

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20 FI_0056 para 7 Inquiry Witness Statement (Supp.) of Mr MacPherson
21 e.g. CO_1446
22 e.g. CO_0198
23 FI_0068 para 86 Inquiry Witness Statement of Mr McAllister
24 In some investigations (but not this one) ten-print forms were already in SCRO's possession and did not arrive as a result of the investigation in question (in which case a check was made to ensure they were legally held by SCRO) - FI_0036 para 192 Inquiry Witness Statement of Mr Stewart.
25 FI_0031 para 87 Inquiry Witness Statement of Mr Geddes
26 DB_0001h pdf page 3 – a crystal bag, Mr Geddes 26 June page 64ff
27 FI_0056 para 9 Inquiry Witness Statement (Supp.) of Mr MacPherson
28 e.g. FI_0031 paras 34-36 Inquiry Witness Statement of Mr Geddes

22.26. Taking the elimination worksheet CO_0198 as an example, the names of persons to be compared are listed against columns indicating bundles of marks, such as Y7 to V9. These columns then divide into further columns, headed 'Comp' and 'Date' and 'Check' and 'Date'. A fingerprint examiner would take the bundle, bundle Y7 to V9, and compare the outstanding marks in this bundle against the fingerprint form of one of the persons listed, as an example DC Wallace. The examiner would then initial the 'Comp' column and insert the date in the 'Date' column.

22.27. A second examiner would then take the bundle of marks Y7 to V9 and compare them to the fingerprint form for DC Wallace. If he agreed with the conclusion he would initial and date the 'Check' and 'Date' columns and the photograph of that mark would be removed from the bundle.[29]

22.28. The next examiner would pick up the remainder of the bundle and would know that the bundle had been compared against DC Wallace. He would go on to compare the remaining marks against the prints of another person on the list.

22.29. The consequence of this method of working was that the bundle as a whole (in the case of bundle Y7 to V9 a total of 50 marks)[30] was not checked against each and every person named on the list but it is not possible to tell from the elimination worksheet which specific marks the examiners checked against any particular individual.

Prioritisation

22.30. The fingerprint examiners would prioritise their work.

22.31. Mr Mackenzie said that the officer would always note where marks were retrieved from and would give priority to certain marks such as those at the point of entry to a crime scene.[31]

22.32. As a general rule, eliminations were given priority so as to reduce the number of marks to compare against suspects and search on the AFR system. In the case of a murder at the victim's home many marks would be eliminated as marks of the deceased, police officers, scene of crime officers, members of the family etc. By focussing on such eliminations the aim was to isolate marks that might be significant.[32]

22.33. In the Marion Ross case in the initial stages all the fingerprints were from elimination forms, as there were no suspects at that time. By the end of the case over 160 elimination forms had been received for comparison, which was a large number.[33]

22.34. Input was received from the police as to priorities.[34] The critical relationship was between the senior investigating officer (SIO) and the principal fingerprint officer in charge of the case at SCRO. Mr Stewart said that normal practice was that in a first discussion with the SIO he would tell you who lived at the house where the

29 FI_0036 para 83 Inquiry Witness Statement of Mr Stewart
30 See DB_0003
31 FI_0046 para 84 Inquiry Witness Statement of Mr Mackenzie
32 FI_0036 paras 66, 78 Inquiry Witness Statement of Mr Stewart
33 FI_0055 paras 49-51 Inquiry Witness Statement of Mr MacPherson
34 Mr Geddes 26 June page 76

crime had been committed and SCRO would start with those people so that they could whittle down the outstanding marks to make the best and most efficient use of resources.[35]

22.35. The SIO would set the priorities for SCRO for example which marks and which persons were of particular interest. A critical part of case management was a regular dialogue with the SIO, which would often take place daily.[36] Where there was a significant volume of marks, comparison work had to be prioritised which was an iterative process involving the SIO who would specify marks or persons of particular interest to the investigation. These would change as the investigation progressed.[37]

22.36. Mr Geddes understood the re-organisation of the Glasgow bureau into geographical teams to have been associated with a desire to increase communication between police officers and fingerprint experts. It was intended to encourage information flow as police would be able to speak about cases with someone familiar with their division.[38]

22.37. The work carried out by the fingerprint experts was subject to the demands of the police officer in charge of the case who requested comparisons. The experts did not make the decision about what they were to compare, they were always subject to instruction.[39]

22.38. It was normal for the senior member of the team to play an active part in the comparison work. The Marion Ross case was Mr Geddes's first "huge" special case. Staff worked split shifts but if he and Mr MacPherson were on duty together and the police had indicated that particular marks were to be given priority Mr MacPherson would take the lead and examine them first.[40]

'Phoning out' results to police during the investigation

22.39. In contrast to volume cases, where the Form 13B would be used to report the results to the police when the fingerprint examiners had finished, in special cases Mr MacPherson said that once a positive identification had gone round four experts it would come back to the first expert who made the comparison. He would then pass on the result of the identification by telephone to either the SIO or the incident room for the case.[41]

22.40. Negative results were also phoned out. Mr Geddes said: "If I had a pound for every time I phoned out a negative result to a police officer and was met with the answer, 'No, it has got to be him.' 'I am sorry, it is not.' 'Well, it has got to be. We have got CCTV evidence.' 'Well, I am sorry, it does not match.' One week you could be the hero, the next week you are just a useless lab rat. That is how it goes. Unless the detail disclosed in the mark matches that of their potential red-hot suspect, it is not going to be [an] ident."[42]

35 Mr Stewart 5 November page 57
36 FI_0036 paras 72-73 Inquiry Witness Statement of Mr Stewart
37 FI_0036 para 77 Inquiry Witness Statement of Mr Stewart
38 FI_0031 para 16 Inquiry Witness Statement of Mr Geddes
39 FI_0036 para 38 Inquiry Witness Statement of Mr Stewart
40 Mr Geddes 26 June pages 74-77
41 FI_0055 paras 58-60 Inquiry Witness Statement of Mr MacPherson
42 Mr Geddes 26 June page 81

Diary pages

22.41. At the time there were diary pages in special cases. DB_0002 are the diary pages for the Marion Ross case. Diary pages could be used for recording conversations with police officers though there was no obligation to do so. Some team leaders would record conversations with the SIO, others would not.[43] Any other information a team leader felt relevant could be recorded on the diary page. [44] In some cases it was used to record findings.[45]

22.42. Mr Dunbar said that the diary page started out as a contact sheet and the one in this case was used mostly for phone calls, which was normal at that time. To get an overview of a case, one would need to look at the elimination sheets, the marks worksheet and the diary pages.[46]

22.43. Later diary pages evolved to contain any information about the case[47] and to be signed.[48]

The recording of results

22.44. As mentioned above when marks were identified or marked insufficient etc they were placed in 'crystal bags', with separate crystal bags for 'insufficient', 'ident', 'elim'. There would be a crystal bag for each identified or eliminated person.[49]

22.45. Also as mentioned, it is not possible to tell from the elimination worksheet which specific mark in any bundle had been checked against any particular individual.

22.46. Once the relevant checks had been carried out, the results of the examination of each mark would be recorded on the marks worksheet but that gave no more than the category of conclusion: fragmentary and insufficient, identified as made by a specific person or eliminated to a person. A mark that remained outstanding would have no entry against it.[50]

22.47. The marks worksheet did not record who reached the conclusion on a mark, the date the conclusion was reached or any reasoning for the conclusion.

22.48. There was no prescribed practice for recording the identities of the examiners involved.[51] Mr Stewart would note the names of experts who had identified or eliminated marks on a sheet of A4.[52] In some cases examiners would initial or sign the comparator screen and that detail would be recorded in due course on the back of the photograph of the mark and Mr Foley said that the final checker would record

43 FI_0036 paras 88, 93 Inquiry Witness Statement of Mr Stewart
44 FI_0036 para 88 Inquiry Witness Statement of Mr Stewart, FI_0056 paras 91-92 Inquiry Witness Statement (Supp.) of Mr MacPherson and Mr MacPherson 27 October pages 83-84
45 FI_0054 para 57 Inquiry Witness Statement of Mr McKenna
46 FI_0053 paras 63, 230-234 Inquiry Witness Statement of Mr Dunbar
47 FI_0053 para 233 Inquiry Witness Statement of Mr Dunbar
48 FI_0054 para 57 Inquiry Witness Statement of Mr McKenna
49 FI_0040 para 16 Inquiry Witness Statement (Supp.) of Ms McBride, FI_0047 para 10 Inquiry Witness Statement (Supp.) of Mr Mackenzie and FI_0031 para 49 Inquiry Witness Statement of Mr Geddes
50 FI_0056 paras 5-11 Inquiry Witness Statement (Supp.) of Mr MacPherson and FI_0036 para 81 Inquiry Witness Statement of Mr Stewart
51 Mr Stewart 5 November page 49
52 FI_0036 para 93 Inquiry Witness Statement of Mr Stewart

the initials of the examiners on the photograph[53] but there were ad hoc variations to even this arrangement, as is evident from Y7.

22.49. There is a tracking log on the reverse of the image of Y7 (PS_0002h) recording the initials of Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna. Ms McBride wrote the first three sets of initials and the word "glass" to record that she had examined it under glass. She explained that she put this particular note on the back of the photograph because she was working on another case and had not (at least by then) signed any of the paperwork in the Marion Ross case and wanted to remember that this was the particular mark that she had seen.[54]

22.50. There is also a list of initials on the back of the photograph of QI2 (DB_0001h). But for the fact that his initials are on the back of this image there would have been no record of the fact that Mr Bruce had been one of the verifiers of both QI2 Ross and QI2 Asbury and he has no independent recollection of his contact with those marks. However, because the initials record no more than the fact that he had some involvement there is no contemporaneous documentation to assist the resolution of the dispute between Mr Bruce and Mr MacPherson as to whether Mr Bruce observed 16 points of identity in QI2 Ross (as Mr MacPherson maintained)[55] or only 12 (Mr Bruce).[56]

Case envelopes

22.51. Case envelopes were prepared at the beginning of a special case and were used for storing miscellaneous documents received or created during an investigation. They were pre-printed with tables on the outside for recording of information[57] but witnesses indicated that they were not well suited to special cases.[58] They were small (about A5 size), and the envelope often did not contain enough space for all the necessary information especially in a big case.[59]

22.52. The information regarding the results of comparisons and other details was entered on the case envelope at the end of the case, normally by the officer in charge of the case in SCRO.[60] The envelope was dated at this stage, and it was signed, normally by the four fingerprint examiners who had made the majority of the identifications in the case. The signing officers would not necessarily have been the examiners who first identified all the marks listed on the case envelope but they would only sign if they agreed with such identifications. This meant that an examiner might have had to examine any marks he or she had not already seen during a case's progress.[61] Conversely, not every officer who had initially identified or verified the marks would

53 FI_0051 para 50 Inquiry Witness Statement of Mr Foley
54 FI_0036 paras 81, 85 Inquiry Witness Statement of Ms McBride and Ms McBride 6 November page 120ff
55 Mr MacPherson 27 October page 31ff
56 Mr Bruce 9 July pages 154-164 and FI_0015 para 11 Inquiry Witness Statement of Mr Bruce
57 FI_0056 para 125 Inquiry Witness Statement (Supp.) of Mr MacPherson
58 FI_0056 para 124 Inquiry Witness Statement (Supp.) of Mr MacPherson
59 Mr Stewart 5 November page 66
60 Mr MacPherson explained the detail of the information given on a case envelope at paras 101ff of FI_0056 his Inquiry Witness Statement (Supp.) and Mr Stewart at paras 46-50 of FI_0036 his Inquiry Witness Statement.
61 FI_0036 para 90 Inquiry Witness Statement of Mr Stewart and FI_0056 para 111 Inquiry Witness Statement (Supp.) of Mr MacPherson

sign the case envelope; for example, Mr Bruce did not sign the case envelope for QI2 Ross.[62]

22.53. There was a number of case envelopes for the Marion Ross investigation. The principal one (DB_0529), which records the marks identified as made by Mr Asbury and also QI2 Ross, contains no independent detail about the examination of the marks and simply contains a cross-reference to the photographs and worksheets.

End of case letter

22.54. In volume crime cases part of Form 13B was used to report findings to the police once work was complete. In the majority of special cases, due to the number of marks, comparisons and searches involved, an 'end-of-case' letter was sent to the SIO. This recorded "the fate of every mark" and it would also intimate the number of suspects compared and the number of persons compared from elimination fingerprint forms. The end of case letter would be signed by the Head of SCRO but would be prepared by others for him.

22.55. In this case it is SG_0383. It was prepared by Mr MacPherson.[63] It sets out no more than the conclusion for each mark and does not contain any detail.

Written Procedures in 1997

22.56. Mr MacPherson recalled that when he started in the bureau in 1970 a handbook gave an indication of procedure but in 1997, although there were written procedures, there was no complete procedures manual.[64] Quality Assurance started in 1994 but he could not recall when a manual was introduced.[65]

22.57. Mr Dunbar, the head of quality assurance at the time, said that while SCRO practised and adhered to policies of quality assurance they did not have a recognised quality assurance position nor structured manuals and written procedures in the way they evolved after 1997.[66] There were two handbooks on classification but they were historical and less relevant by the 1990s. Flow charts had been put together in 1992 based on the written procedures in place at that time. Some teams had memoranda outlining current practice within that team. In late 1997 the bureau started developing these procedures into a manual, which was the start of its review to work towards ISO accreditation.[67] Each team also had a briefing book, and team leaders were responsible for keeping it up to date and making sure team members read it regularly. During the process of ISO accreditation in 2000, Mr Dunbar reviewed all historic and superseded instructions and compiled a set of up-to-date written procedures.[68]

62 DB_0529
63 FI_0056 paras 30-31 Inquiry Witness Statement (Supp.) of Mr MacPherson and FI_0036 para 197 Inquiry Witness Statement of Mr Stewart
64 FI_0055 para 38 Inquiry Witness Statement of Mr MacPherson and Mr MacPherson 3 November page 59
65 Mr MacPherson 3 November pages 59-60 and FI_0046 para 42 Inquiry Witness Statement of Mr Mackenzie
66 Mr Dunbar 6 October page 110
67 See chapter 40
68 FI_0053 paras 93-98 Inquiry Witness Statement of Mr Dunbar

CHAPTER 23

THE SUBSTANTIVE WORK OF SCRO EXAMINERS

Introduction

23.1. This chapter considers the substantive work of examiners at SCRO in 1997 by reference to analysis of marks, comparison, notes, ACE-V, verification, and resolving disagreements. These topics are also referred to in other chapters. The first part of the chapter is intended to serve as a general introduction to the evidence on the way in which SCRO carried out their fingerprint comparison work. It is followed by a discussion of some criticisms made of practices current in 1997.

General methodology

Initial analysis of the mark

23.2. Having checked the paperwork, the fingerprint examiner would assess the mark. He would consider many factors: donating article and development process, possible movement within the mark, distortion, overall shape and pattern, and digit determination.[1]

23.3. The examiner would identify problems with the mark, for example whether the image was 'reversed' (i.e. where ridges were white and gaps between ridges were black),[2] or whether there were distortions (for example a mark on a plastic bag could be distorted), or obvious superimposition. He would check that the mark looked right for the surface it was said to be on, to make sure it had not been interfered with or transferred. He looked to see whether he could see a pattern, the delta and the core. He assessed whether the mark was good enough to allow comparison, the pattern of the ridges and from which finger it came.[3]

23.4. Mr Padden said that when assessing quality one would start by looking at the mark with the naked eye, to see what ridge characteristics might be present in the mark, what problem areas there might be and evidence of any factors that might explain differences. One would look at which areas were clear and unclear within the mark. Having done so the examiner would use a magnifying glass to look at the finer detail.[4] Mr Foley said it was common practice on receiving a mark to look at it for quality and content using the naked eye, and then use a magnifying glass to examine minutiae.[5] Mr Dunbar confirmed that officers were taught to look at the whole picture to assess the mark and then use the glass for the detail. Some officers went straight to a glass check but that could lead to a wrong assessment.[6]

23.5. Mr Stewart said that an examiner became good at assessing which digit and pattern a mark was and that cut down the comparison time.[7] Mr MacPherson

1 FI_0008 para 7 Inquiry Witness Statement of Mr Padden
2 See chapter 19
3 Mr Stewart 5 November pages 35-36, FI_0036 para 63 Inquiry Witness Statement of Mr Stewart, and FI_0055 para 44 Inquiry Witness Statement of Mr MacPherson
4 FI_0008 para 7 Inquiry Witness Statement of Mr Padden
5 FI_0051 para 5 Inquiry Witness Statement of Mr Foley
6 FI_0053 para 57 Inquiry Witness Statement of Mr Dunbar
7 Mr Stewart 5 November pages 35-36

explained that, under the manual system, an examiner would have to assess which digit made the mark and search that against the two hand collection which was a mini version of the 300,000 persons kept on file. The examiner had one shot at it so he had to be pretty good at assessing which digit made the mark, whereas, under the AFR system, the examiner could put a mark in and search all ten digits against the national database. Even under the AFR system it helped if the examiner was positive that the mark was, for example, a left thumb as he could restrict the search of the national database to that digit.[8]

23.6. Mr Stewart described this initial assessment as a subjective process dependent on the expert's training and operational experience. SCRO made every effort to compare each mark they received.[9] That said, the end of case letter recorded that in the Marion Ross case SCRO received a total of 428 marks. 235 were considered fragmentary and containing insufficient detail for comparison.[10]

Selection of characteristics

23.7. Mr Stewart explained that the next step with a mark that was suitable for comparison was to pick some characteristics in it to look for in a comparison print. This is discussed in more detail in chapter 28 under the heading of 'target groups'. Taking Mr Stewart as an example, he said that experience taught that there were common characteristics that occurred regularly in the cores of marks, and again around the delta of marks, so he would avoid those and try to pick another area where he could see three or four characteristics that would give a good starting point. Mr MacPherson spoke of finding a grouping of characteristics that caught the eye.[11]

Comparison of mark with prints – the technique used

23.8. Having obtained as much information as possible from the mark[12] the examiner would then look at the mark with the print of the digit he wanted to compare. He would look on the fingerprint form to see if he could see the group of characteristics. If he could he would check they were in the correct sequence in relationship to one another then go back to the mark, see where the next characteristics were in relation to this starting point, then return to the form and build up the process from there.[13]

23.9. When comparing a mark the 'normal procedure' in Glasgow was to use a 'fingerprint glass' (also known as a 'linen glass' or 'linen tester' or 'magnifying glass').[14]

8 Mr MacPherson 27 October pages 47-49
9 FI_0036 paras 48, 63 Inquiry Witness Statement of Mr Stewart
10 SG_0383
11 Mr MacPherson 27 October pages 46-49
12 Mr MacPherson 27 October page 46
13 Mr Stewart 5 November page 36ff
14 Mr Stewart said that glasses which covered a larger area replaced linen glasses - FI_0036 para 54 Inquiry Witness Statement of Mr Stewart. The term linen tester or glass derived from what was used to check the cloth quality in the linen trade. Linen glasses did not provide a huge degree of magnification. FI_0053 paras 79-80 Inquiry Witness Statement of Mr Dunbar. Mr McGinnies described linen testers as small square ones that fold out. Mr McGinnies 4 November page 16.

23.10. "As a norm" the examiners at SCRO were trained to use two fingerprint glasses simultaneously, one placed over the mark and the other placed over the relevant digit or piece of palm on the ten-print form.[15]

23.11. Mr MacPherson and Mr Stewart both did this, describing the process as taking in information through both eyes at the same time, one over the mark, one over the print. Mr MacPherson said "I would then be doing the comparison between the two in my head." He considered this to be the definitive test, as it showed marks and prints one to one and allowed direct comparison between the crime scene mark and the form simultaneously.[16] More detail on this technique of "binocular comparison" is given in chapter 28.

23.12. The examiner did not physically mark the characteristics on the mark. He would use 'dissecting needles' or pointers to keep note of the characteristic he was looking at, to follow a sequence from one characteristic to another on both the mark and the candidate print, to allow him to count intervening ridges.[17]

23.13. By way of example of another approach, Mrs Joanne Tierney, Fingerprint Unit Manager SPSA Edinburgh, who was trained in Northern Ireland,[18] told the Inquiry that she used one eyeglass. This was slightly bigger than what she described as "the small square eyeglasses" and she would put the photograph of the mark and a print from the print form alongside one another under the glass at the same time and compare them through the one eyeglass. She did so by closing one eye and looking from one image to the other, always carrying information from the mark to the print and at the same time looking to see if there was anything in the print that disagreed with what was in the mark. This is how she was trained and how she would conduct a comparison today. At the time she trained, although there were computer systems, trainees worked in a manual capacity during the first part of their training, and built up their skills in assessing a mark without reference to a print.[19]

23.14. Mr Alex McGinnies, SPSA Training Officer, indicated that different people compare in different ways using different types of glasses and different numbers of glasses.[20] He demonstrated the use of a fingerprint glass, which was black in colour, adjustable for eye relief, and locked with a wheel,[21] and showed how SPSA trainees are instructed to place one glass over the mark and another over the print and go between the two. He indicated that after time, and with experience, examiners would work out which method of comparison was best for them. He said that as an area of the unknown mark is viewed, the brain stores that detail in memory. When the print is examined, the stored information is compared with the information from the unknown mark. He could not understand how Mr MacPherson and others could have been able to view two things simultaneously.[22]

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15 FI_0036 paras 51-53 Inquiry Witness Statement of Mr Stewart, FI_0046 para 50 Inquiry Witness Statement of Mr Mackenzie and FI_0053 para 80 Inquiry Witness Statement of Mr Dunbar
16 FI_0055 paras 45-46 Inquiry Witness Statement of Mr MacPherson
17 FI_0046 para 52 Inquiry Witness Statement of Mr Mackenzie and Mr Stewart 5 November pages 38-41
18 FI_0152 para 1 Inquiry Witness Statement of Mrs Tierney
19 Mrs Tierney 12 November pages 60-65
20 Mr McGinnies 4 November page 14
21 He said others were fixed position, and of a brass type.
22 Mr McGinnies 4 November pages 10-19

Commentary

23.15. The Inquiry notes the technique described by the SCRO examiners which appears to differ from that advocated now. As Mr Ashbaugh has said "The identification process is synonymous with sight. Even though friction ridge prints are physical evidence, the comparison of this evidence is a mental process."[23]

23.16. In his book published in 1999, he wrote "When an area of the latent print is viewed, the brain stores in memory the data representing that area. Then, when an area of the exemplar print is examined, this new data is forwarded to the brain and compared with the stored data of the latent print. Seldom is there a situation where the brain can see the areas in the latent and exemplar prints at the same time, even when under the same fingerprint glass. A mental picture is always part of the comparison…. Even though the latent print was viewed a fraction of a second before the exemplar print, as soon as the eyes leave the latent print the brain is depending on memory for the comparison."[24] He also discussed how the brain has inherent abilities to assist us with recognising things with limited data, and how an expectancy of seeing something due to past knowledge or suggestion can cause errors to be made with recognition or identification. It was for reasons such as these that "A specific comparison sequence has been established within the friction ridge identification community. The latent print is always analyzed first, before comparison to the exemplar. The rule ensures an uncontaminated analysis of the unknown friction ridge detail. Comparisons conducted in this fashion ensure objectivity and prevent contamination through previous knowledge."[25]

23.17. The way in which the eyes and brain take in and use information was not a matter that the Inquiry investigated. It is clearly important that the fingerprint community keeps abreast of developments in the understanding of how the eyes receive and how the brain processes information, and considers what impacts these might have on practical techniques as well as on procedures.

The comparator machine

23.18. A comparator machine was available to SCRO examiners. The Inquiry heard (and was shown) that the photograph of a mark was placed on one side of the comparator and a known print on the other so that they were displayed, magnified, side by side.[26] The points in sequence and agreement could be marked up on the glass screens. These had to be kept clean as with any enlargement there would be an element of distortion.[27]

23.19. There was no laid out practice for operating the comparator,[28] and Mr Sheppard, the then Head of NTC fingerprint training, was not aware of any protocol as to how it should be used in a bureau. He described it as an ideal training tool, but he did not know how it was applied in bureaux.[29]

23 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology. Boca Raton, Florida: CRC Press, 1999, page 103
24 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 107
25 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 108
26 FI_0046 para 108 Inquiry Witness Statement of Mr Mackenzie
27 FI_0046 para 108 Inquiry Witness Statement of Mr Mackenzie
28 Mr Geddes 26 June page 72
29 Mr Sheppard 8 July page 178

23.20. Mr Foley said that some officers would use the comparator more than others. He used it regularly as it gave a bigger image of the mark and enabled him to look at it from a fresh angle.[30]

23.21. Mr Stewart was "never a great fan of the comparator" but it might help him establish areas of movement or distortion in a mark because he could write all over the comparator and clean that off, which could not be done on the mark. He could trace ridge flow and shape and try and reach a decision as to where, if there were problem areas in a mark, the problems actually were.[31]

23.22. Mr Foley[32] and Ms McBride both said that examination was carried out first by using a linen glass with the comparator machine being a secondary option. Ms McBride's view was that the correct way to approach a mark was to use a linen glass as the primary mechanism for viewing it. The comparator machine could be used to look at discrete parts of the mark. If a mark was unclear she would sometimes ask for a photographic enlargement as this was preferable to the comparator as it would sometimes obscure characteristics due to the lighting process. She would not "sign for" an identification unless she had used a linen glass to carry out the comparison.[33]

23.23. The comparator was also used as a means to discuss problem areas of a mark with other experts as the examiner could easily show them the area of interest. "We were always taught that it was good to seek other experts' advice."[34] Mr Dunbar said he would not regard such discussions as counting as an additional check of the mark.[35]

23.24. Mr Dunbar said that no one should use a comparator as a means of comparison[36] but some officers did admit that examiners involved in the process of verification did on occasion do just that. This is discussed in chapter 28.

Notes

23.25. Experts would not mark up points of importance on a mark before looking at comparison prints and in general they did not keep notes of their analysis or comparisons.[37] Mr Stewart explained that staff were not encouraged to take notes. When he started as an expert, staff did keep notes, but time and resource constraints meant the practice stopped.[38]

30 FI_0051 paras 9-11 Inquiry Witness Statement of Mr Foley
31 Mr Stewart 5 November pages 46-47
32 Mr Foley 23 June page 165
33 FI_0039 paras 21-22 Inquiry Witness Statement of Ms McBride
34 FI_0036 para 55 Inquiry Witness Statement of Mr Stewart
35 FI_0053 paras 84-85 Inquiry Witness Statement of Mr Dunbar
36 FI_0053 para 82 Inquiry Witness Statement of Mr Dunbar
37 Mr MacPherson 27 October page 54, Mr Stewart 5 November page 76, Mr McKenna 6 November page 33, FI_0046 para 92 Inquiry Witness Statement of Mr Mackenzie, FI_0053 para 90 Inquiry Witness Statement of Mr Dunbar, FI_0031 para 67 Inquiry Witness Statement of Mr Geddes and FI_0039 para 82 Inquiry Witness Statement of Ms McBride
38 FI_0036 para 141 Inquiry Witness Statement of Mr Stewart

Photographic enlargements

23.26. In cases where the mark was unclear, fingerprint examiners would sometimes ask for a photographic enlargement of the mark to be produced[39] or for the mark to be re-photographed.[40]

23.27. Mr Stewart said that in a difficult case it was standard at the time to get a photographic enlargement and mark it, and that would then form the basis of a discussion about the mark.[41]

ACE-V

23.28. On being asked about the procedure known as ACE-V (analysis, comparison, evaluation and verification), Mr MacPherson said that "ACE-V" was not in vogue at the time, but he did not think they were doing anything different.[42] ACE-V was a way of verbalising the procedure when you looked at a mark. In the analysis process one would glean as much information as one could from the mark. "Evaluation" as a term came in as the bureau was moving towards the non-numeric standard but to him it described the initial stage of his assessment, it would be the first step.[43] He called getting someone else to look at a mark at the stage now referred to as verification "peer review".[44]

23.29. Mr Stewart said that ACE-V was a modern label for a process that they had done more or less for years,[45] and Mr Mackenzie that it was in line with the way he had always done it anyway.[46]

Verification

23.30. Findings in respect of marks had to be confirmed by other officers. The second person to view the mark, being the first checker, would check the insufficients, the negatives, the identifications and the eliminations in the case. Thereafter the third and fourth experts would check the identified marks.[47]

23.31. In a case such as the Marion Ross case, due to the number of marks involved, any identified marks would be fast-tracked to the verification stage as the primary importance in such a case would be to verify an identification and inform the investigation team of the result.[48]

The verifier

23.32. Mr MacPherson explained that who checked a mark depended on who was available.[49] Mr Stewart said that a team handling the comparisons for a case would tend to get the next geographical team to do their verifications.[50]

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39 FI_0039 para 22 Inquiry Witness Statement of Ms McBride
40 FI_0053 para 82 Inquiry Witness Statement of Mr Dunbar. See also chapter 19
41 Mr Stewart 5 November page 16
42 See chapter 28
43 Mr MacPherson 27 October pages 45, 64-65
44 Mr MacPherson 27 October page 66 – a description used by Ashbaugh, see chapter 36 para 54.
45 Mr Stewart 5 November page 34ff
46 Mr Mackenzie 11 November page 102
47 FI_0046 paras 93-94 Inquiry Witness Statement of Mr Mackenzie
48 FI_0031 para 42 Inquiry Witness Statement of Mr Geddes
49 FI_0055 para 55 Inquiry Witness Statement of Mr MacPherson
50 Mr Stewart 5 November page 56

23.33. At one time the chief inspector was the final signatory on an identification prior to it being communicated to the investigating officer in the case, but during the 1980s Mr MacPherson became the first civilian fingerprint officer to take on this role. There was basically a hierarchical way of checking identifications at that time i.e. the fourth and final check was carried out by a senior examiner. However, on a change of chief inspector the view was taken that each examiner was an expert in his or her own right so there was no need for a hierarchy and after that it might be a senior person doing the first analysis.

23.34. Mr MacPherson recognised that one of the conclusions of the Taylor report into the workings of SCRO was that junior experts could possibly be influenced by senior experts, if they were following on from their comparisons. Mr MacPherson was sceptical, and commented: "An anonymity based procedure was brought in to address this fallacy, but I believe that it has now been scrapped."[51]

Verification process adopted

23.35. Mr Dunbar said that "for an identification I would expect the process of comparison of a mark to be exactly the same for the first check as for the fourth checker."[52] From the second checker onwards he would expect the comparison to involve binocular comparison with magnifying glasses.

23.36. Mr Stewart said that if he was not the first person to examine the mark against the prints it was essentially the same process except one did not do it against all ten fingers.[53] If he was asked to look at an identification as part of the verification process he would usually remove the mark from the comparator screen and carry out his examination using glasses.[54]

23.37. However, Mr Foley said that sometimes the second, third or fourth examiners who were checking the identification might examine the mark only on the comparator screen;[55] and Mr MacPherson confirmed that that occurred.[56] Mr Foley did, though, add that if he had done a third or fourth check "from the comparator" he would look at that mark again when the case paperwork came around after the photograph had been initialled. This was to confirm that it was the mark that he had seen on the comparator and to satisfy himself that he could eliminate or identify the mark from what he could see under the glass.[57]

Knowledge of preceding examiner's findings

23.38. If an officer was "second checking" another officer's work for a volume crime case he would be aware of that officer's findings from the case envelope or diary, whereas in a special case he would know that he was doing a second check but frequently he did not know who had previously examined the mark.[58] Of course, in those cases where examiners marked their initials on screen as the verification

51 FI_0055 paras 14-18 Inquiry Witness Statement of Mr MacPherson
52 FI_0053 para 90 Inquiry Witness Statement of Mr Dunbar and FI_0046 para 98 Inquiry Witness Statement of Mr Mackenzie, who agreed.
53 Mr Stewart 5 November page 42
54 FI_0036 para 56 Inquiry Witness Statement of Mr Stewart
55 Mr Foley 23 June pages 163-169
56 Mr MacPherson 27 October pages 68-69
57 FI_0051 para 18 Inquiry Witness Statement of Mr Foley and Mr Foley 23 June page 163
58 FI_0036 paras 69-70 Inquiry Witness Statement of Mr Stewart

process proceeded[59] each examiner would have known who the preceding examiners had been.

23.39. Because SCRO was always in a state of flux Mr MacPherson was unsure exactly what more would have been known to examiners in 1997. He preferred to rely on his evidence at the trial. In this, as quoted to the Inquiry, he indicated that SCRO practice was to pass on the mark and fingerprint form with the checker being told which digit the first examiner believed it was.[60]

23.40. Though Mr MacPherson was uncertain about practice in 1997 there is a consistency in evidence that supports the conclusion that at that time in some instances a verifier would know more than just the relevant digit identified by the preceding examiner.

23.41. Mr MacPherson said that sometimes when he had made an identification he would put the mark and form on to the comparator machine and mark up his points of comparison and ask someone else to look at it.[61] More generally, he said that he would always leave a starting point, maybe two or three characteristics, on the screen for the next examiner, his justification being that the office was busy and this promoted efficiency:[62] "if someone had spent an hour and a half looking for a piece of palm you had to give some indication as to a starting point."[63] He disagreed with any suggestion that by leaving something on the screen one examiner was influencing another.

23.42. Mr Geddes said at that time markings might have been on the screen but it was incumbent on the individual to ensure that they could satisfy themselves.[64] He would wipe the markings off[65] but practice varied. Mr Stewart's practice was to take a quick look at the marking on the screen to give an indication of where points had been found before removing the material from the comparator machine and carrying out his examination at his desk.[66] Mr Bruce said that officers asked other officers to look at things on comparators for their own opinion, with the original officer's marks and initials still on the screen. "The rule was that marks were supposed to be wiped clean before doing that, but sometimes that did not happen" and "at that time points were left on the screens and it was something of a practice."[67]

23.43. That was confirmed by Mr Foley who said that when verifying an identification: "the first time you would see it could be on the comparator….Normally you could find your colleague's findings marked on the screen in red pen to see what they could see, but would then wipe clean to start afresh and satisfy yourself that you could find 16 characteristics. It was a form of discussion between the experts."[68] By that

59 See chapter 6 para 43
60 Mr MacPherson 3 November page 101ff
61 FI_0055 para 55 Inquiry Witness Statement of Mr MacPherson and Mr MacPherson 3 November pages 62-63
62 Mr MacPherson 27 October page 30ff, particularly at pages 36-37
63 Mr MacPherson 27 October page 69
64 Mr Geddes 26 June page 60
65 Mr Geddes 26 June page 68ff
66 Mr Stewart 5 November pages 43-44,173-174
67 FI_0015 para 6 Inquiry Witness Statement of Mr Bruce
68 FI_0051 paras 11-12 Inquiry Witness Statement of Mr Foley

he meant literally that there could be a discussion between two examiners at the verification stage with one demonstrating to the other the 16 characteristics on which he relied in reaching his conclusion.[69]

Resolving disagreements about an identification

23.44. Mr Stewart's recollection was that in 1997 there was no written procedure. He considered that two broad scenarios arose:

(i) When one examiner considered that another examiner was wrong the matter would be taken to the head of bureau.

(ii) It was different where the two examiners were agreed as to the conclusion of identity but one could find 16 points and the other could not. The two examiners could discuss the matter and they might engage the assistance of a more senior examiner to resolve the difference. If one adhered to the view that 16 points were not present it was accepted practice for the mark to be taken to another examiner and, if four experts could agree, the mark "just progressed".[70]

23.45. The evidence of Mr Mackenzie, Mr Dunbar, Mr McKenna[71] and Ms McBride was broadly to the same effect. Mr Dunbar's description of dispute resolution prior to the McKie case was that it was a matter for "open discussion".[72] Mr Mackenzie said that it could be a case of "fine tuning, going through the mark and discussing to see if any differences of opinion could be resolved";[73] and Ms McBride cited Y7 as an example of a case where one examiner (Mr MacPherson) was able to move on to other examiners when Mr Geddes took the view that 16 common points had not been demonstrated by Mr MacPherson.[74]

23.46. One incidental observation in this context by Mr Stewart merits further consideration. His recollection was that debates about the presence of 16 points between two examiners who were otherwise agreed as to identity were quite common and it is the explanation that he gave that is of interest:

> "It would be reasonably common because your first examiner or your second examiner could be somebody who is just newly qualified as an expert and did not have the experience of the other examiner. It all comes down to interpretation. Your interpretation grows as you gain experience so there are areas that you would expect to have differences. I would not expect somebody who has just qualified to be able to identify a mark that someone who has got say ten years' experience ... there is a quantum leap. You are still learning as you are progressing."[75]

69 Mr Foley 23 June pages 163-169
70 Mr Stewart 5 November pages 10-19
71 Mr McKenna 6 November page 5
72 FI_0053 paras 73-76 Inquiry Witness Statement of Mr Dunbar
73 FI_0046 paras 100-101 Inquiry Witness Statement of Mr Mackenzie
74 Ms McBride 6 November pages 88-89 and FI_0039 paras 30, 67-70 Inquiry Witness Statement of Ms McBride
75 Mr Stewart 5 November pages 10-11 and FI_0036 para 120 Inquiry Witness Statement of Mr Stewart

Criticisms made of practice in 1997

23.47. The fact that it was not uncommon for there to be differences of opinion as to the existence of the 16 common points required by the legal standard in 1997[76] leads in to a number of criticisms of the working methods in SCRO made by Mr Luckraft, a fingerprint examiner who joined SCRO in January 2000 from Grampian Police Identification Bureau (where he worked as a fingerprint/scene of crime officer) and who had worked prior to that in fingerprint bureaux in England.[77] These included "a culture of being able to 'push' a comparison to 'tease' 16 points in agreement"[78] and associated forms of peer pressure.

"Teasing out" points

23.48. "Teasing out" points was a phenomenon encountered by Evett and Williams:

> "Probably because of the 16-points standard, a practice has grown in the UK service which we did not find in the other countries we visited. A fingerprint expert will generally reach an inner conviction about the correctness of an identification long before he has found 16 points. His subsequent activity will centre on establishing that features which are clearly visible in the print can also be seen in the poorer quality mark. The print is used as a guide for scrutinising the mark. This is called, in some quarters, 'teasing the points out'. This contrasts sharply with the practice in Holland, for example, where the expert must decide on all of the usable features that are present in the mark before comparing it with the print. Whereas we do not believe that the UK procedure entails risk, we do not consider it particularly good from a scientific viewpoint."[79]

23.49. Mr Luckraft said that the volume crime cases section (where junior officers would work) did not, at the time he worked there, make identifications with less than 16 points, and there was what he called a 'push for 16 points' culture in SCRO. He experienced what he called a degree of "peer pressure" which was directly related to this. Mr Luckraft's impression, based on conversations he had with trainees and on working with them, was that trainee fingerprint officers were made to feel inadequate if they could not see 16 points in comparison. He thought this was the area where there was probably the most peer pressure on junior fingerprint officers.[80]

23.50. Mr Dunbar gave evidence to the Inquiry in relation to this particular piece of evidence of Mr Luckraft. He stated that he was "at a loss" to understand what 'tease' actually meant. He had heard it described as 'if you have got 14 you have got 16', and said "No you do not. If you have got 14 you have got 14 so why would you tease it?" He also explained to the Inquiry that information on identifications with less than 16 points did leave the bureau.[81]

23.51. There was, nonetheless, confirmatory evidence of a working environment within SCRO consistent with a "push" to find 16 points.

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76 See chapter 32
77 FI_0113 para 1 Inquiry Witness Statement of Mr Luckraft
78 FI_0113 para 9 Inquiry Witness Statement of Mr Luckraft
79 CO_1375 pages 26-27
80 Mr Luckraft 20 October pages 11-12 and 43 and FI_0113 para 2 and others Inquiry Witness Statement of Mr Luckraft
81 Mr Dunbar 6 October page 126

23.52. There is the record from 1995 taken by Mr Dunbar of a meeting of the Q (short for 'Quality') circle which contained the following text: "Concern was shown by the group over the question of persons' names being taken over not signing an identification i.e. not seeing 16 characteristics when supervisors do. A. Dunbar informed the group that this would only happen if the same individual continually refused to sign impressions when others would." [82]

23.53. Mr Dunbar's explanation was that the Quality Circles were started as a kind of precursor to quality assurance being formally recognised in the bureau, and were attended by a cross-section of staff. He took the note. To regard it as evidence of the potential for pressure to be put on examiners would be to misinterpret it. There had been a misconception among some members of staff that people were going to be noted any time they did not sign an identification. That was not the case but individuals who consistently did not find 16 points when supervisors did would be regarded as requiring further training.[83]

23.54. Even with that explanation it is clear that individuals who consistently did not find 16 points when supervisors did were to be regarded as requiring further training. It does not seem to have been regarded as conceivable that the error might be on the part of the individual or individuals who claimed to be able to find 16 points.[84] It is also plain that the matter was one of concern to staff at the time, as it had been raised by them at the Q Circle meeting.

23.55. Mr Padden also described pressure being brought to bear on examiners who could not identify 16 points in sequence and agreement at the time when that was a requirement for presentation of the evidence in court. He spoke of "an eye rolled" or an "exasperated noise" because an identification had been "stopped" from "leaving the office".[85] He said that one "would try everything [one] could to get to 16 points" but emphasised also the consciousness of an examiner that he might require one day to justify his view in court. Even fourth examiners did say "no."[86]

23.56. Witnesses were asked whether what could be considered as an arbitrary standard of 16 points might encourage examiners who were otherwise satisfied of their conclusion to seek to find additional points that were not readily or even properly discernible in order to meet the required standard.

23.57. Mr Stewart said it came down to the individual's interpretation of what they saw. Some experts would see more in a mark, some less. There was never any pressure or encouragement to "tease out" points. "Experts were always encouraged to be honest about what they saw."[87]

23.58. Ms McBride said that it was not a case of "teasing out" but rather of double-checking her work before passing it on and saying that she could not reach 16.[88]

82 DB_0554 - 24 March 1995
83 Mr Dunbar 6 October pages 109-118
84 Mr Dunbar 6 October pages 109-118
85 Mr Padden 23 June pages 81-82
86 Mr Padden 23 June page 86
87 Mr Stewart 5 November page 25
88 Ms McBride 6 November page 139

23.59. It is apparent that examiners did not always adopt the positions of more senior colleagues as regards identifications. As an example, Mr Geddes adhered to his own opinion that he could see only ten points in sequence and agreement in Y7 despite the demonstration by Mr MacPherson of the 16 points that he observed.

Peer pressure

23.60. Evidence of peer pressure came from Mr Sheppard, based on his experience with trainee examiners who spoke of passing difficult marks to a more experienced officer.[89]

23.61. Mr Luckraft also gave evidence that there was a culture within SCRO of holding peers in very high esteem and that the view was that more years' service connoted a higher level of skill. He said that Mr MacPherson was viewed by other fingerprint officers within SCRO as a "brilliant, fantastic fingerprint expert who was not capable of making a mistake" and that the same view was taken of Mr Mackenzie.[90] It was "very difficult indeed to stand up to and challenge the SCRO fingerprint bureau." His view was that this culture and 'peer pressure' could create a bias toward identifications. In his evidence to the Inquiry Mr Luckraft drew distinctions between SCRO and other fingerprint bureaux that he had worked in (for example, Manchester and Devon & Cornwall). His view was that at these other bureaux those working there were very good at their jobs but "they would hold their hands up if they made a mistake" and this was the difference between them and SCRO; they were not "arrogant" as SCRO were.[91] He expressed the view that "just because you are a big bureau, [it] does not mean you are the best."[92]

23.62. The view that more years' service connoted a higher level of skill lies at the heart of Mr Stewart's explanation of the manner in which differences of opinion as to the presence of 16 common points were approached at SCRO in 1997.[93]

23.63. Mr Padden spoke of feeling that it was difficult for a junior officer to disagree with a senior officer where the senior had passed an identification to the junior for confirmation. In his view it was not good practice for very experienced fingerprint officers to pass an identification to a very junior or recently authorised fingerprint officer for confirmation. He stated: "In such cases, as the very junior officer, you can think 'who am I to doubt an experienced officer's work?'. There was no specific pressure, but I did feel sometimes that it was not conducive to independent conclusions. I know other officers shared that view and there was a general feeling that one or two people were not too happy if their identifications were not confirmed by others."[94]

23.64. He clarified in his oral evidence to the Inquiry that there were incidences where he did go to more senior officers in relation to identifications and say that he "did not quite see" something or ask for it to be explained. He said that there would be a certain amount of "unconscious pressure" in looking at an identification where the

89 Mr Sheppard 8 July pages 174-175 and FI_0082 paras 71-72 Inquiry Witness Statement of Mr Sheppard – see chapter 21 para 47
90 FI_0113 para 6 Inquiry Witness Statement of Mr Luckraft
91 Mr Luckraft 20 October page 13
92 Mr Luckraft 20 October page 12
93 See para 46 above
94 FI_0008 para 12 Inquiry Witness Statement of Mr Padden

three preceding people looking at it were more senior officers and had all found 16 points. But people did question the identifications in such situations and he did know that the fourth person in such a situation had said no in certain cases.[95]

23.65. Mr Graeme Smillie, a fingerprint officer with SCRO since he joined as a trainee in 1979, did not ever feel he was put under any pressure to confirm a positive or negative identification as a second-checker. "I would like to think I am strong-willed enough not to succumb to any such pressure in any event."[96] The earliest thing he could remember being told when he joined was that making a misidentification was the cardinal sin of fingerprints, and he could not think of any instance where he had heard of a colleague being pressured to confirm an identification.

23.66. Mr Smillie said that there were instances where one expert would present an identification with 16 characteristics and others could not satisfy themselves that there were 16 and they would refuse to sign to an identification. "On occasions where a person refused to sign up to the 16-point standard there might be a throw away comment by the first checker along the lines of 'oh, there is no point giving anything to you'." Depending on the personalities of the experts in question he might take such comments as either a throw away comment made in jest or with others, who were a bit more "bitter and twisted", there could be a bit of venom attached to the comment.[97]

23.67. Mr Bruce could not remember there ever being pressure put on checkers of a mark to confirm the findings of the first fingerprint officer,[98] nor could Mr Foley.[99] Mr Stewart said that if an expert felt under any form of pressure he or she could speak to a line manager; he himself had never felt under pressure to get a specific result.[100] Ms McBride said that people would disagree about some marks with some vigour[101] but she could not remember any serious disputes about the analysis of marks.[102] She explained the background to one disagreement (in 2000) in her supplementary statement. She knew that some people might have been unhappy with the fact that she was disagreeing with the mark.[103]

23.68. Mr Dunbar commented on the views expressed by Mr Luckraft, challenging his use of the word 'culture'. He said that it was not unusual and indeed universal in bureaux throughout the UK, including the two bureaux Mr Luckraft worked in prior to SCRO, to find people who were held in high regard. "These people will have earned that on a day to day basis over years of giving feedback to others." It was a fact that examiners held certain of their peers with longer service in high esteem. "It is not just everybody with longevity in the job that is held in high esteem, it is earned."[104]

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95 Mr Padden 23 June pages 84-86
96 FI_0007 para 16 Inquiry Witness Statement of Mr Smillie
97 FI_0007 para 17 Inquiry Witness Statement of Mr Smillie
98 Mr Bruce 10 July page 35 and FI_0015 para 9 Inquiry Witness Statement of Mr Bruce
99 FI_0051 para 14 Inquiry Witness Statement of Mr Foley
100 FI_0036 para 75 Inquiry Witness Statement of Mr Stewart
101 FI_0040 para 86 Inquiry Witness Statement (Supp.) of Ms McBride
102 FI_0039 para 70 Inquiry Witness Statement of Ms McBride
103 FI_0040 para 75 Inquiry Witness Statement (Supp.) of Ms McBride
104 Mr Dunbar 6 October pages 120-121

23.69. Mr Dunbar said that he was not aware of any 'peer pressure' to confirm the identifications of more senior officers.[105] He emphasised that the approach taken by officers and taught at SCRO was that the decision was for the fingerprint officer irrespective of who had taken a prior decision. He suggested that some fingerprint comparisons were almost adversarial whereby the examiner would be trying to find something wrong, "so if you can eliminate that fact from your mind that there is nothing wrong then the decision is correct." The officer had to make the decision for himself. He would have to speak to it, and not, say, Mr MacPherson.[106]

23.70. Mr Bell said that he did not see the sort of peer pressure described by Mr Luckraft and others happening when he was Director of the Scottish Criminal Record Office. His understanding was that fingerprint officers were trained on the basis that they had to speak to what they saw. He was "quite confident" that if a fingerprint officer had a view, whether a junior or a trainer or whatever, then they would express that view. "The whole ethos was to give your view on what you found."[107]

23.71. The HMICS September 2000 report considered working practices within SCRO. The report observed that officers ought to be able to work independently and free from 'pressures' including 'internal' pressures such as "hierarchical pressures where a junior member of staff is verifying the work of a senior colleague."[108]

23.72. The points discussed in this chapter about criticisms of SCRO practice are picked up in chapter 28.

105 FI_0053 para 149 Inquiry Witness Statement of Mr Dunbar
106 Mr Dunbar 6 October page 122
107 Mr Bell 7 July page 10
108 SG_0375 para 8.15

Part 4

The Opinion Evidence

Part 4

The Opinion Evidence

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CHAPTER 24

THE INQUIRY'S APPROACH TO THE OPINION EVIDENCE

Introduction

24.1. This chapter outlines the approach that I adopted to focus the evidence regarding the competing opinions of the fingerprint examiners in relation to the marks of interest to the Inquiry.

The Inquiry's task

24.2. My interest was in the marks Y7, QI2, QD2, QE2, QL2 and XF,[1] and of these Y7 and QI2 (Ross) in particular.

24.3. A number of difficulties arose in addressing the evidence concerning the identification of the marks. This was not only due to the substantial number of fingerprint practitioners who had already expressed opinions, particularly in relation to Y7, but also to the fact that they had expressed those opinions using different combinations of source materials of varying quality with the consequence that their findings were not directly comparable.

24.4. A further problem was how to ensure that the Inquiry was appropriately informed in relation to this specialist subject matter. For the reason given in the Preface, I decided not to appoint an assessor. Also, so many practitioners around the world had already put on record their opinions on Y7 that I did not look for any additional opinions about the mark Y7. The question was: how could I put myself in a position to assess the evidence?

24.5. The Inquiry was an inquisitorial process, operating within a statutory framework, and the practical issue was to focus the evidence, bearing in mind the need for due economy while acting fairly towards those involved.

Addressing the task

24.6. Resolving the means by which that objective could be achieved proved time-consuming and demanding.

24.7. An early proposal to obtain the assistance of Professor Champod of the University of Lausanne, as the Inquiry's expert witness, was not acceptable to all core participants. Having taken their views into account, I decided that expert assistance should be obtained from more than one source.[2] A 'technical review' was put in train in which a number of experts, including Professor Champod, were to be asked to examine the existing material with a view to identifying for the Inquiry the specific areas in dispute. Finding experts who were willing to assist the Inquiry and who were acceptable to all core participants proved difficult, but eventually the relevant

1 See chapter 1
2 Chairman's Decision on Specialist Assistance for the Inquiry dated 3 February 2009. Letter to core participants dated 17 March 2009.

documentary evidence was made available to three individuals by means of an electronic database.[3]

24.8. Soon after the third of these individuals began work, the Inquiry was advised by the other two contributors that the task was fraught with difficulties due to a number of complications including the difference in source material used, the difference in visual presentation styles, the quality of detail recorded on some of the images being insufficient for review purposes and, in most instances, the absence of working notes making it impossible to reconstruct the thought processes which led the experts to their conclusions. In light of this, the exercise was brought to an end and the strategy was reconsidered.[4]

24.9. At this point the process that became known as 'the comparative exercise' emerged as the only practical approach to the shaping of the opinion evidence phase of the oral hearings.

The questions to be considered

24.10. Two distinct questions arise for consideration:

1. Were the SCRO examiners correct in their identification of the marks on the basis of the source materials available to them?

2. Can the identification of the marks be substantiated by reference to any other source materials?

24.11. Image selection can be a critical variable in fingerprint comparison work and because there can be a subjective element to the judgment of what the 'best' image is it was not to be expected that there would be consensus among the fingerprint examiners in relation to the selection of any one image for each mark to be used in evidence. However, my view was that unless all of the examiners studied the same image it could not be known whether the defining issues derived from (a) the comparative quality of the images studied, (b) differences of opinion as to the observation and interpretation of ridge detail or (c) a combination of both. The first issue was to ascertain which ridge details in mark and print required scrutiny and what the nature of the dispute was concerning each of those details.

The constraints in the comparative exercise

24.12. The comparative exercise focussed primarily on the marks Y7 and QI2 Ross. Four of the marks attributed to Mr Asbury were not included in the comparative exercise: QD2 (the mark found on the banknote) and QE2, QI2 Asbury and QL2 (found on the tin). XF, the mark found on a Christmas gift tag in the living room of Miss Ross's house and identified as the right forefinger of David Asbury, which had not been

3 Letter to core participants dated 17 March 2009. The three were Christophe Champod, Professor of Forensic Science, University of Lausanne, Switzerland; Mr Martyn Annetts, the Fingerprint Bureau, Directorate of Forensic Services, the Metropolitan Police, London; and Mr David Goodwin, owner/director Fingerprint Associates Ltd, Northamptonshire, formerly Head of Fingerprint Services, Northamptonshire Police. Style letter of instruction - FI_0187

4 FI_0189 - letter to Mr Annetts dated 22 April 2009 and MP_0003 his report by letter dated 24 April 2009; FI_0188 - letter to Mr Goodwin dated 22 April 2009; and FI_0218 - letter to Professor Champod dated 22 April 2009 and ED_0003 his report dated 28 September 2009.

contested, was included in Phase 1 of the exercise, on a precautionary basis, for reassurance that there was no dubiety over its identification.[5]

24.13. The comparative exercise was a constrained exercise devised by the Inquiry team for the purposes of the Inquiry. The constraints related to (1) the source materials used, (2) the level of participation of the various fingerprint examiners and (3) the tasks that the participants were asked to undertake.

24.14. I decided that standardised source materials (both for the marks and the prints) should be used to facilitate analysis of the competing opinions of the witnesses on a like-for-like basis.

24.15. In order to keep the exercise within manageable bounds I decided that only a representative selection of witnesses would be asked to participate and even those who were participating were assigned two different levels of participation. A limited number of contributors were invited to participate in Phase 1, which was intended to establish the principal ridge characteristics, both those said to be similar and those said to be different, which would require to be considered. In Phase 2 the Phase 1 contributions were circulated for comment both by the Phase 1 contributors and a wider pool of fingerprint practitioners in order to obtain a good understanding of the competing points of view of examiners on each side of the argument.

24.16. None of the participants was asked to undertake the conventional ACE-V[6] comparison of the materials. Since each of the participants had expressed an opinion on the marks (or was at least thought to have done so)[7] it would have been unduly artificial to have asked them to carry out an ACE comparison as if they were looking at the marks and prints for the first time. Instead, the SCRO examiners were asked to highlight points of similarity, while the contradictors were asked to highlight points of difference.

Implementation

24.17. Counsel to the Inquiry, Mr Moynihan Q.C., discussed the proposal for the exercise with Mr Pugh, Director of Forensic Services at the Metropolitan Police, and Mr Pugh agreed to make personnel and imaging facilities available for the exercise.

Selection of source materials

24.18. When the possibility of such an exercise was first mooted at the procedural hearing in November 2008[8] it was anticipated that there would be potential difficulty in relation to the selection of images to be used. In the event, the images proved to be self-selecting. Given that the first objective was to address the question whether the SCRO examiners had correctly identified the relevant marks, it made sense to conduct that exercise by reference to the materials that they used when first identifying the marks.

24.19. With the exception of the fingerprint forms for Mr Asbury (which were relevant to XF), the Inquiry had the originals of that material plus the negatives of the

5 See chapter 1
6 See chapter 36
7 It turned out that Mr Grigg and Mr Leadbetter had not previously examined QI2.
8 Counsel to the Inquiry, transcript of procedural hearing, 21 November 2008 page 13

photographic images for Y7 and QI2 Ross. The Inquiry was able to obtain a range of reproductions of the original materials from the photographic laboratory of the University of Westminster with the assistance of Dr Bleay, and the Metropolitan Police also provided high resolution copies scanned from the originals.

24.20. Given that the first objective was to determine whether the SCRO examiners had correctly identified the relevant marks, I decided to give them the opportunity to select the particular reproduction images of the marks to be used for Phase 1.

1. The actual size images were produced from scanned images of the original photographs by the Metropolitan Police.[9]

2. For the enlargements Mr MacPherson and Ms McBride indicated that for QI2 they would prefer to use the version that the Metropolitan Police had scanned from the photograph[10] (rather than the negative) and, for Y7, they selected one of the images provided by Dr Bleay reproduced from the negative using a high resolution scanner. The scale of the enlargements (8x) also reflected the choice of the SCRO examiners.

24.21. In relation to the prints:

1. For Y7 the fingerprint form for Ms McKie taken on 6 February 1997 (and date stamped 7 February)[11] was used because it was the form referred to in the first SCRO report dated 10 April 1997,[12] which was a production in both the Asbury and McKie trials. Phase 1 contributors were provided with a copy of the whole fingerprint form (which included plain and rolled impressions) and a high resolution scanned copy (photographic enlargement) of the plain left thumb print from that form. The plain impression was used for the chartings in the comparative exercise because it was that print that was used in the charted enlargement in Production 152,[13] to which the SCRO report of 10 April 1997 referred. The charted enlargement in Production 189[14] used a rolled impression[15] but that production had been prepared only for the trial in *HMA v McKie* and used the fingerprints taken from Ms McKie when she was arrested in March 1998,[16] which were not available when SCRO first identified the mark.

2. For QI2 Ross the Phase 1 contributors were given a copy of the whole fingerprint form for Miss Ross dated 10 January 1997[17] and a high resolution scanned copy (photographic enlargement) of the right forefinger print from that form (there was only one print per finger on this 'dead print form'). The 10 January 1997 form was used in the comparative exercise because that was the one referred to in the SCRO report dated 17 March 1997[18] and it

9 QI2 – DB_0001h and Y7 – PS_0002h
10 DB_0001h
11 ST_0004h
12 SG_0409
13 ST_0006h
14 DB_0012h
15 Mr MacPherson 27 October pages 121-123
16 See chapter 11 para 4
17 DB_0142h
18 SG_0377

was also used in the charted enlargement of QI2 Ross[19] prepared for the Asbury trial.

24.22. The Inquiry team, assisted by the Metropolitan Police, compiled the packs of materials which included a DVD of the images. With their assistance the Inquiry was able to accommodate witness preferences as to the form in which some material was provided (wet photography or digital) without prejudicing the objective which was, so far as possible, to have the witnesses express their evidence by reference to common source materials.[20]

Phase 1

24.23. The Phase 1 contributors were the four SCRO examiners who had signed the court productions (Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna), and Mr Grigg, Mr MacLeod, Mr Wertheim and Mr Zeelenberg. Mr MacLeod, Mr Wertheim and Mr Zeelenberg had all expressed their disagreement with the identifications of Y7 and QI2 Ross.[21] Mr Grigg had disagreed with the identification of Y7 but had not previously carried out a comparison of QI2.[22]

24.24. The comparative exercise in relation to XF was of limited scope. The Inquiry asked the Phase 1 contributors whether they agreed the identification. The exercise was more intensive in relation to Y7 and QI2 Ross. Contributors were asked to do chartings and also to provide specified information relating to their examinations, including the characterisation of the ridge details highlighted in their charts.

24.25. In relation to Y7 the SCRO examiners were asked to reproduce jointly the points of similarity to which they had referred in the original charted enlargements (Court Productions 152,[23] 180[24] and 189[25]), a combined total of 17 points. The SCRO numbering of points on the charted enlargement for Y7 in Production 189 differed from that in Productions 152 and 180. Point 14 on those productions was not marked on Production 189, while point 10 on it was not marked on the other two.[26] To avoid confusion, on the charting for the comparative exercise the points were numbered as in the two earlier Productions, 152 and 180, with the point that was unique to the later Production 189 being number 17. The numbering of the SCRO points can be reconciled by referring to table 1.

19 SG_0131
20 For example the SCRO witnesses asked to be provided with wet photography images prepared to the scale of enlargements that they used in 1997. Two of the contradictors (Mr Wertheim and Mr Zeelenberg) expressed a preference to work from digital images.
21 Re Mr Wertheim and Mr Zeelenberg and Y7 see chapters 12 and 13. Mr Wertheim had examined QI2 in 2000 at the request of Mr Asbury's defence team - FI_0118 pdf pages 6-7, 54-59 Inquiry Witness Statement of Mr Wertheim. Mr MacLeod had prepared a report on QI2 Ross for the Scottish Executive in 2005 in connection with Ms McKie's civil case - SG_0704 (see chapter 17) and Mr Zeelenberg had examined it in 2006 in connection with that case - FI_0115 paras 98-100 Inquiry Witness Statement of Mr Zeelenberg.
22 Mr Grigg reviewed the identification of Y7, but not QI2, at the National Training Centre, Durham in 2000 - FI_0081 paras12ff, 79 Inquiry Witness Statement of Mr Grigg and Mr Grigg 29 September pages 21-22.
23 ST_0006h
24 DB_0011h
25 DB_0012h
26 Mr MacPherson and Mr Stewart both identified the differences in evidence in chief at Ms McKie's trial.

Production 152	Corresponding number in Production 189
1	Same
2	Same
3	Same
4	Same
5	14
6	5
7	6
8	7
9	8
10	9
11	Same
12	Same
13	Same
14	Not in 189
15	Same
16	Same
Character in 189 alone	
17	10

Table 1: Y7 – SCRO points in Production 152 (used for comparative exercise) and Production 189

24.26. For QI2 Ross the SCRO examiners were also asked to reproduce jointly the 16 points indicated in the charted enlargement, Production 99.[27] Since the original reports were a joint exercise it was sufficient that the Inquiry had one common reproduction of those points.

24.27. Each of Mr Grigg, Mr MacLeod, Mr Wertheim and Mr Zeelenberg was asked to chart the principal differences between the mark and the print on which he relied in relation to both Y7 and QI2 Ross. They were asked to do so without reference to each other and without reference to the SCRO charting.

Phase 2

24.28. When the Inquiry received the Phase 1 contributions, the Metropolitan Police prepared master volumes and the Inquiry issued these for the Phase 2 contributions. The exercise at Phase 2 was essentially to comment on the charted enlargements prepared in Phase 1 with their accompanying material. Those who contributed at Phase 1 had an opportunity to comment on what had been prepared by the other Phase 1 contributors. In addition, a number of other fingerprint examiners were invited to comment on the Phase 1 contributions. No chartings were produced at Phase 2; the contributions were textual only.

24.29. At Phase 2 the four SCRO contributors at Phase 1 had an opportunity to comment individually. Mr Stewart submitted a Phase 2 response for QI2 but not for Y7.[28]

24.30. The additional witnesses invited to contribute at Phase 2 were Mr Bayle, Mr Gary Dempster, Mr Dunbar, Mr Halliday (Y7 only), Mr Leadbetter, Mr Mackenzie, Mr McGregor and Mr Swann.

27 CO_0207h and SG_0131
28 Mr Stewart 5 November pages 136-137

24.31. The involvement of Mr Dunbar, Mr Halliday, Mr Mackenzie and Mr Swann has been discussed in Part 1 of this Report. Mr Swann had examined QI2 out of professional interest at some time prior to the Justice 1 Committee inquiry.[29] Mr Bayle had appeared on Frontline Scotland[30] disputing the identifications of Y7 as Ms McKie's mark and QI2 as Miss Ross's. Mr Leadbetter, an independent fingerprint expert, had identified Y7 as Ms McKie's when he was provided with materials from Mr Wertheim in around 2000.[31] He had not previously examined QI2.

24.32. Mr McGregor and Mr Dempster were fingerprint examiners in the Aberdeen bureau who, along with another colleague, were the authors of the Aberdeen report, a report from 2005 disputing the identification of Y7 as Ms McKie's.[32] A further report disputing the identification of QI2 as Miss Ross's was also produced by the same authors.[33] Mr Dempster and Mr Dunbar did not provide contributions.

The comparative exercise material

24.33. The materials supplied for the comparative exercise and the contributions received, with their Inquiry references, are noted in Appendix 8.

24.34. Additional images of the Phase 1 chartings were prepared by scanning them at higher resolution and electronically resizing them so that the chartings from two contributors could be displayed simultaneously during the Inquiry hearings. The Inquiry references for these digital images had a suffix 'A' to ensure the correct version was displayed.[34]

	Y7 Charting	QI2 Charting
SCRO	FI_0167A	FI_0166A
Mr Grigg	FI_ 0168A	FI_0169A
Mr Wertheim	FI_0164A	FI_0165A
Mr Zeelenberg	FI_0170A	FI_0171A
Mr MacLeod	FI_0162A	FI_0163A

Table 2: Y7 and QI2 Ross - Phase 1 Chartings used at the hearings

Analysis of the comparative exercise and its use at Inquiry hearings

24.35. Counsel to the Inquiry analysed the Phase 1 and Phase 2 responses in preparation for the second set of Inquiry hearings, and the analysis was published.[35]

24.36. Mr MacLeod's chartings appeared to be more a reproduction of the SCRO's points of similarity than an indication of points of difference and for that reason I have disregarded his evidence. As for the remaining Phase 1 contributions for Y7 and QI2, the analysis disclosed a measure of consistency in relation to the principal features in the marks and prints that were being pin-pointed by the various contributors but substantial dispute as to whether those features were in agreement or were differences.

29 FI_0149 pdf page 36 Inquiry Witness Statement of Mr Swann and Mr Swann 21 October pages 114-115
30 See chapter 13
31 FI_0148 page 1 Inquiry Witness Statement of Mr Leadbetter
32 CO_0002
33 DB_0651
34 For more on 'A', and also 'h', documents see Appendix 6 and the reader's guide.
35 FI_0180

24.37. The concentration of the dispute on a limited number of points influenced the conduct of the hearings. The discussion could centre largely on the list of features for each mark as numbered by SCRO. Given the need for due economy a representative sample of the opposing views could be taken and, with the agreement of core participants, not all of those who had the same conclusion were called to give oral evidence. Of those who did give oral evidence not all needed to do so on all the points. Some would give oral evidence only on limited points and others would not give oral evidence on points in the marks, but on various other matters.

Criticism of the comparative exercise materials

24.38. The deployment of the standard materials in the comparative exercise was inevitably a compromise as I sought to balance my various responsibilities including progressing and focussing the Inquiry's programme of hearings. Some witnesses (including Mr Wertheim and Mr Swann) questioned whether the materials selected for the comparative exercise were the clearest available or the most relevant.

24.39. For example, Mr Swann's opinion was that the images used were "generally inferior"[36] and, for Y7, he preferred a reproduction of an image taken by Mr Kent.[37]

24.40. Mr Swann[38] and Mr Berry[39] were also critical of the selection of a plain impression of Ms McKie's left thumb for the comparative exercise for Y7. They argued that a rolled impression should have been included.

24.41. The argument for the inclusion of a rolled impression has to be seen in context:

1. The comparative exercise used reproductions of the materials (both the image of the mark and the plain print) used by SCRO in Production 152.[40] Mr Swann first identified the mark in February 1999 by studying a copy of the charting in that production,[41] so using reproductions of those sources provided an element of continuity not only as regards the decision of the SCRO examiners but also Mr Swann's original finding. Fingerprint examiners at the Metropolitan Police have confirmed that the print used in that production was a plain impression taken from the fingerprint form of 6 February 1997.[42]

2. In March 1999[43] Levy & McRae gave Mr Swann a sheet containing four impressions of Ms McKie's left thumb, one rolled and three plain.[44] In July 1999 Mr Swann sent a charting of Y7[45] to Mr Kent. For the purposes of that charting Mr Swann selected one of the plain impressions, not the rolled.[46]

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36 FI_0149 pdf page 37 Inquiry Witness Statement of Mr Swann
37 e.g. FI_0145 pdf page 12 Mr Swann Phase 2 Comparative Exercise
38 e.g. FI_0149 pages 32 and 37 Inquiry Witness Statement of Mr Swann
39 TS_0055 pages 3 and 5-6
40 ST_0006h
41 See chapter 11 paras 24-26
42 MP_0012
43 TS_0009
44 TS_0010
45 HO_0104
46 Mr Swann 21 October pages 14-15 and image FI_2110.01, FI_0149 page 30 Inquiry Witness Statement of Mr Swann

3. In chart N in his presentation to the Inquiry[47] Mr Swann used a reproduction of the print taken from the Daily Mail[48] to illustrate his evidence about the Rosetta characteristic. Though Mr Berry described the impression reproduced in the newspaper as "an excellent rolled thumb impression of Shirley McKie",[49] Mr Swann described it as a plain impression: "The Daily Mail Impressions of Shirley McKie's Left Thumb were very clear 'plain impressions'."[50] Mr Zeelenberg, also, was of the opinion that the newspaper impression was a plain.[51]

4. Mr Swann relied on a rolled impression in his evidence regarding the points at the tip of the mark shown in his chart M.[52] The sequence of events is of relevance. At the time when he first identified Y7 as Ms McKie's mark Mr Swann did not have an explanation for those points. They remained unresolved in July 1999 when he prepared the charting that he sent to Mr Kent and at the later date when he spoke to the Mackay team from Tayside Police.[53] It was at a later date that Mr Swann studied the rolled impression and found an explanation for those points.[54] Prior to that his own identification did not depend on examination of a rolled impression nor on an explanation for the points at the tip beyond the contention that with 18 points in agreement (18 being the number depicted in the Kent charting) the mark must be identical.[55]

5. Mr Swann has said: "I believe I am the only examiner of Mark Y7 to have had sight of and used, that is in the early stages, a good rolled impression."[56] That being so, the rolled impression is more relevant to the second question in paragraph 10 above.

24.42. Picking up that last point, it was not envisaged that the comparative exercise would be the exclusive source of material for the debate among the examiners. It was only one aspect of the evidence considered during the hearings. Witnesses could, and did, speak to other materials: different images of the marks (including a Kent image of Y7)[57] and a variety of fingerprint impressions for Ms McKie, both plain and rolled. The extent to which a range of materials came to be used is evident from chapter 25. For example, where witnesses addressed the Kent image of Y7, as opposed to the Strathclyde Police image of the mark that was used in the comparative exercise, that is stated by referring to the 'Kent image' in summarising the evidence on the relevant point.

The witnesses at the hearings

24.43. It was agreed that to avoid duplication on the part of SCRO Mr MacPherson alone of the four signatories to the court reports would give oral evidence on the full detail

47 TS_0004 slide 15
48 TS_0008
49 'Strabismus' reproduced in e.g. TS_0055 from page 29 at page 33
50 TS_0053 page 56 para 9 and see Mr Swann 21 October page 54
51 Mr Zeelenberg 7 October page 78 and AZ_0061 slide 116
52 TS_0004 slide 14
53 Mr Swann 21 October page 27ff
54 TS_0053 pages 71-72
55 Mr Swann 21 October page 33
56 TS_0054 para 5
57 TS_0006 – a photograph taken by Mr Kent on 17 March 1998 (see CO_0296)

of the comparison of Y7 and QI2. Mr Stewart, Ms McBride and Mr McKenna gave oral evidence on a limited range of matters.

24.44. Mr Mackenzie, Mr Zeelenberg and Mr Wertheim also gave oral evidence on the full detail of the comparison of Y7 and QI2. More selective evidence was led relative to both marks from Mr Grigg and Mr Swann. Mr Leadbetter's evidence at the hearings was confined to Y7 because he had not studied QI2 before the commencement of the Inquiry.

The materials considered

24.45. Some witnesses began their oral evidence with presentations they had prepared:

1. Mr Mackenzie (PowerPoint presentation TC_0024),
2. Mr Swann (PowerPoint presentation TS_0004*),*
3. Mr Leadbetter (PowerPoint presentation TS_0005*)* and
4. Mr Zeelenberg (PowerPoint presentation AZ_0061*)*.

24.46. Mr Zeelenberg's presentation was based on digital copies of the comparative exercise materials but the other witnesses used a variety of source materials.

24.47. Mr Mackenzie's presentation in relation to Y7 was largely based on his Tulliallan presentation, which used a number of source materials.[58] In relation to QI2 the source material was primarily the charting that he had prepared for Mr Gilchrist's investigation[59] and associated transparencies.[60] The further chartings that he prepared specifically for the Inquiry hearings[61] were, at his election, prepared using a copy of the image that he had used in the charting for the Gilchrist investigation. That charting contained 29 points and during the hearing he referred to an additional two, giving a total of 31 points in sequence and agreement.

24.48. Mr Swann prepared a number of chartings of both Y7 and QI2.

1. The Inquiry had available to it the charting of Y7 that he sent to Mr Kent in July 1999,[62] which had a total of 18 points confined to the lower area. The image of the mark was the Kent image and the print was a plain impression from the sheet provided by Ms McKie's solicitors, Levy & McRae.[63]

2. In his PowerPoint presentation he gave evidence of 32 common points in Y7,[64] illustrated by reference to a number of charts. He used the Kent image as the image of the mark Y7 and a combination of rolled and plain impressions from the blue ink prints[65] provided by Levy & McRae, and a copy of Ms McKie's print reproduced in the Daily Mail.[66]

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58 CO_0059 is a pdf version of the illustrated booklet which Mr Mackenzie distributed at the hearings, based on the Tulliallan presentation, and most of the 'captured images' during his oral evidence were from CO_0059.
59 CO_2005h
60 CO_2004h
61 TC_0211.01-TC_0211.10
62 HO_0104
63 Mr Swann 21 October pages 14-16
64 Mr Swann 21 October page 53ff
65 TS_0010
66 TS_0008

3. For QI2 Mr Swann primarily addressed the image in his chart P in TS_0004, the exact origins of which were uncertain.[67]

4. Mr Swann made available to the Inquiry the originals of the chartings that were copied in his PowerPoint presentation.

24.49. Mr Leadbetter prepared chartings specifically for the Inquiry[68] and provided the original charts and a digital presentation of them.[69] His source materials included a photographic original of the print of Ms McKie sent to him by Mr Wertheim that he understood was the image reproduced in the Daily Mail.[70]

24.50. The Inquiry also had the original Y7 exhibit that Mr Wertheim prepared for Ms McKie's trial (defence production 2),[71] which used an image of Y7 and an impression of Ms McKie's print both taken by Mr Wertheim.

24.51. During the hearings, the Inquiry displayed the images digitally on screens. To address the risk that a witness might consider a digital image to be of inferior quality, photographic originals were available at the hearings for reference and were consulted by witnesses as required.

Digital marked-up images

24.52. Computer software was available during the hearings to permit witnesses to 'mark up' the images that were displayed on screen in order to pin-point precisely the characteristic that was being referred to or to illustrate the interpretation of any detail. The images were captured and given a number by reference to the date of hearing and the transcript of evidence contains a cross-reference to the relevant captured image.[72] These captured images became an indispensable resource, enabling witnesses to comment directly on each other's analysis.

My deliberations

24.53. In reaching my conclusions I have considered the full range of evidence both in the context of the comparative exercise materials and the other source materials to which the various witnesses referred.

24.54. I have considered both questions in paragraph 10 above, that is to say, not only whether the SCRO examiners were justified in the conclusions that they reached on the basis of the source materials available to them at the time of their initial findings but also whether the identifications can be upheld relative to any of the other source materials that the various witnesses drew to my attention.

24.55. In ordinary litigation, civil and criminal, there can be emphasis placed on the need for 'independence' on the part of an individual before he can be regarded as an 'expert witness' qualified to express an opinion on which the court can rely. In the case of *Gage v HMA* the appeal court expressed the view that a witness compromised his position as an 'expert witness' as a result of remarks that he

67 Mr Swann 21 October pages 115–117
68 Mr Leadbetter 23 October page 82
69 TS_0005
70 Mr Leadbetter 23 October page 80
71 DB_0172h
72 See reader's guide

had made in a television programme.[73] Some witnesses here have been involved in television programmes and in other media pieces on the case and evidence has been taken in a number of contexts, including the Justice 1 Committee of the Scottish Parliament. In that respect this case is extraordinary and because the purpose of the Inquiry includes, in part, resolving the debate among the experts who have openly declared their opinions it is necessary to consider all of the evidence on its merits.

24.56. Issues were raised about some of the witnesses.[74] These include criticism on behalf of the SCRO officers of Mr Zeelenberg for his conversations with Mr Mackenzie and Mr Dunbar during and after the meeting at Tulliallan. That is addressed in chapter 16. Those officers have also criticised Mr Wertheim for erroneously challenging the authenticity of the mark XF. Those matters are collateral to the technical dispute about the identification of the marks Y7 and QI2 Ross. Both the meeting at Tulliallan and the questioning of the authenticity of XF occurred after Mr Zeelenberg and Mr Wertheim were on record as disputing Y7. I am entirely satisfied that despite the unfortunate history to this matter all of the witnesses on both sides of this hotly and at times bitterly contested dispute were doing their best to assist the Inquiry by explaining their reasoning for the opinions that they held. There is no justification to regard any one of them as unreliable. In any event, my determination does not depend on the reliability of any of the individuals.

24.57. It is all too easy to see the examiners as falling into two broad camps, those who identify marks Y7 and QI2 Ross, and those who contradict them. On that view, it could be thought that the decision is one that calls simply for assessment of the relative credibility and reliability of the proponents in each camp. That does not do justice to the sophistication of the debate. There are contrasts on matters of detail among examiners within each 'camp', let alone between the two 'camps'. It is not simply a question of declaring a winner between the two 'camps'. The decision calls for a close analysis of the competing evidence on a point by point basis.

24.58. I had the benefit of a comprehensive tutorial from the witnesses as a whole, all of whom are acknowledged experts with many years of experience. I have sought to apply that combined teaching in reaching my own conclusions on the marks.

Questions relating to fingerprint methodology

24.59. As noted in paragraph 37, analysis of the comparative exercise contributions enabled me to narrow down the matters that required to be discussed. Not every dispute among the witnesses was explored.

24.60. For example, there was a dispute whether Y7 was an impression from a thumb and, if so, whether it was the right or left thumb.

1. Mr MacPherson,[75] Ms McBride[76] and Mr Halliday, another SCRO examiner who was involved in the checking of Y7,[77] all said that the ridge flow at the

73 [2011] HCJAC 40 and 2011 SCL 645 paras 19 & 20
74 See also chapter 40 para 104
75 See chapter 6 para 14
76 See chapter 6 para 37
77 See chapter 7 paras 166 and 173

top of the mark initially suggested that it might be a right thumb but on closer examination they decided that it was a left thumb.

2. In his contribution to the Inquiry's comparative exercise Mr Zeelenberg stated: "the mark has some properties reminiscent of a thumb but I would not be surprised if the donor finger would turn out to be another, opposing, finger (left right or forefinger)."[78] In oral evidence he said he thought it was made by a right thumb or right forefinger.[79] Mr Mackenzie's recollection was that at the meeting at Tulliallan in August 2000[80] Mr Zeelenberg and Mr Rudrud had expressed the view that the mark was more like a right thumb print until the door-frame was produced when they conceded that it could be a left thumb print.[81] The minutes of the Tulliallan meeting do record Mr Zeelenberg as initially saying that in general the contour was consistent with the print of a thumb[82] and the ridge endings to the right were consistent with a right thumb.[83] After the door-frame was examined, the minutes recorded that Mr Zeelenberg thought "it was a small print for a thumb" and that "by looking at that the position is more consistent with a left thumb than a right but it could be a forefinger."[84] Mr Zeelenberg was not sure that the minutes were accurate.[85]

3. Mr Wertheim said that Y7 showed decided "shingling" of ridges in the upper half of the mark. By "shingling" he was referring to the tendency of bifurcations in the ridges to open exclusively to one side or the other. In a right thumb, he said that the majority of the bifurcations opened to the left above the core, whereas in a left thumb the majority opened to the right above the core, and "shingling" was seldom noticed in other digits. The "shingling" he observed in Y7 indicated that it was most likely made by a right thumb.[86]

4. In their 2000 report the examiners at the NTC in Durham said that it was more likely that the impression was made by a right thumb but because they could not say categorically that it was not a left thumb[87] they compared Y7 with all Ms McKie's prints[88] and found that it did not match any of her fingerprints.

24.61. The question whether Y7 is truly an impression of a left thumb was an incidental dispute. The substantive argument was whether (a) SCRO had correctly identified points in agreement in the lower part of the mark, (b) there were points of difference between mark and print and (3) there was a satisfactory explanation for any points of difference.

78 FI_0099 Mr Zeelenberg Phase 1 Comparative Exercise
79 Mr Zeelenberg 7 October page 25
80 See chapter 16
81 FI_0046 para 219 Inquiry Witness Statement of Mr Mackenzie
82 CO_0050 page 11
83 CO_0050 page 11
84 CO_0050 page 16
85 Mr Zeelenberg 8 October pages 12-14
86 FI_0118 section 11 para 26 (pdf page 74) Inquiry Witness Statement of Mr Wertheim
87 CO_0032
88 FI_0082 para 50 Inquiry Witness Statement of Mr Sheppard

24.62. In chapter 35 I discuss the five questions that a fingerprint examiner must consider when carrying out a comparison, which are equally relevant to my own assessment of the evidence.

1. Are the materials supplied (mark and print) of sufficient quality for comparison purposes?

2. Can the examiner accurately observe sufficient characteristics in mark and print for a reliable comparison?

3. Can the examiner reliably interpret those characteristics in such a manner as to determine which match and which differ?

4. Can the examiner ascertain a reliable explanation for the characteristics that differ?

5. Can the examiner find sufficient matching characteristics to justify the inference that the mark is uniquely identifiable as having been made by a specific person?

24.63. The quality of the source materials has to be addressed not only in relation to the comparative exercise materials but also in relation to the other materials that the witnesses relied upon.

24.64. In relation to the second question, the Inquiry heard differences of opinion as to whether with their training and expertise fingerprint examiners can on occasions see something clearly that a lay person cannot see.[89] The observability of certain of the characteristics relied upon by SCRO in relation to both Y7 and QI2 Ross was in issue but in a more refined form because the dispute was among the fingerprint examiners as to what they could observe with trained eyes.

24.65. Question 3 has two inter-related dimensions to it. The first concerns the level of tolerance that is being applied during the examination. The second relates to the proper characterisation of observed ridge detail as either a ridge ending or a bifurcation. Both derive from the fact that examiners require to work with 'degraded' impressions.

24.66. Fingerprint examiners require to make allowances for differences in appearance ('within source variations') that can occur when the same finger makes a number of impressions. That allowance is termed 'tolerance' and is critical to the distinction between 'within source variations' (which can be consistent with identity) and 'between source variations' (which are indicative of exclusion).

24.67. The degree of tolerance[90] being applied is not measurable but some insight is gained by contrasting the findings of each examiner in relation to specific features in the impressions. Ridge detail in an impression can be incomplete giving rise to an ambiguity whether the characteristic is properly a ridge ending or a bifurcation. In addition, because ridge characteristics do not necessarily reproduce identically in separate impressions, it is possible for a ridge ending to reproduce as a bifurcation and vice versa. Examiners may agree that there is an observable

89 Mr Logan 16 November page 71
90 See chapter 28 para 44ff

feature (generically termed an 'event') in the same location in mark and print but whether they are prepared to commit themselves as to its specific type (i.e. a ridge ending or a bifurcation) calls for the application of judgment and is influenced by the examiner's personal tolerance for differences in appearance. Variations in interpretation are an outward sign of lack of clarity in ridge detailing and an indication that consideration has to be given to the appropriateness of the degree of tolerance that has been applied.

24.68. The second reason for paying close attention to variations in the interpretation of each observed 'event' is that operating to wider tolerances can also be associated with reverse reasoning, where the examiner uses the clearer detail in the print to resolve an ambiguity in the mark.[91] Using reverse reasoning to resolve an ambiguity in the mark in a manner consistent with the print carries the danger of producing an adventitious match not properly supported by proper analysis of the mark.

24.69. Question 4 concerns the treatment of differences between mark and print. This calls for ascertainment of the 'differences' that require consideration, and ultimately for assessment of the reasons advanced to explain those differences.

24.70. Question 5 has to be approached from two perspectives. Firstly, there was the standard that the SCRO examiners were required to work to at the time for an identification for court purposes, which was the 16-point standard. Secondly, there is the contemporary non-numeric approach to sufficiency to be considered. Subsumed within each is the question whether the more overt reliance on third level detail since 1997 assists in supporting the identification.

91 See chapter 28 para 50

CHAPTER 25

THE MARK Y7

Introduction

25.1. This chapter addresses the question: did Ms McKie make the mark Y7? In this chapter, the fingerprint evidence that emerged at the Inquiry is set out, and my conclusions on the evidence are given together with my overall determination on all of the evidence.

25.2. After preliminary observations the summary of the oral and written evidence that follows is in a number of sections.

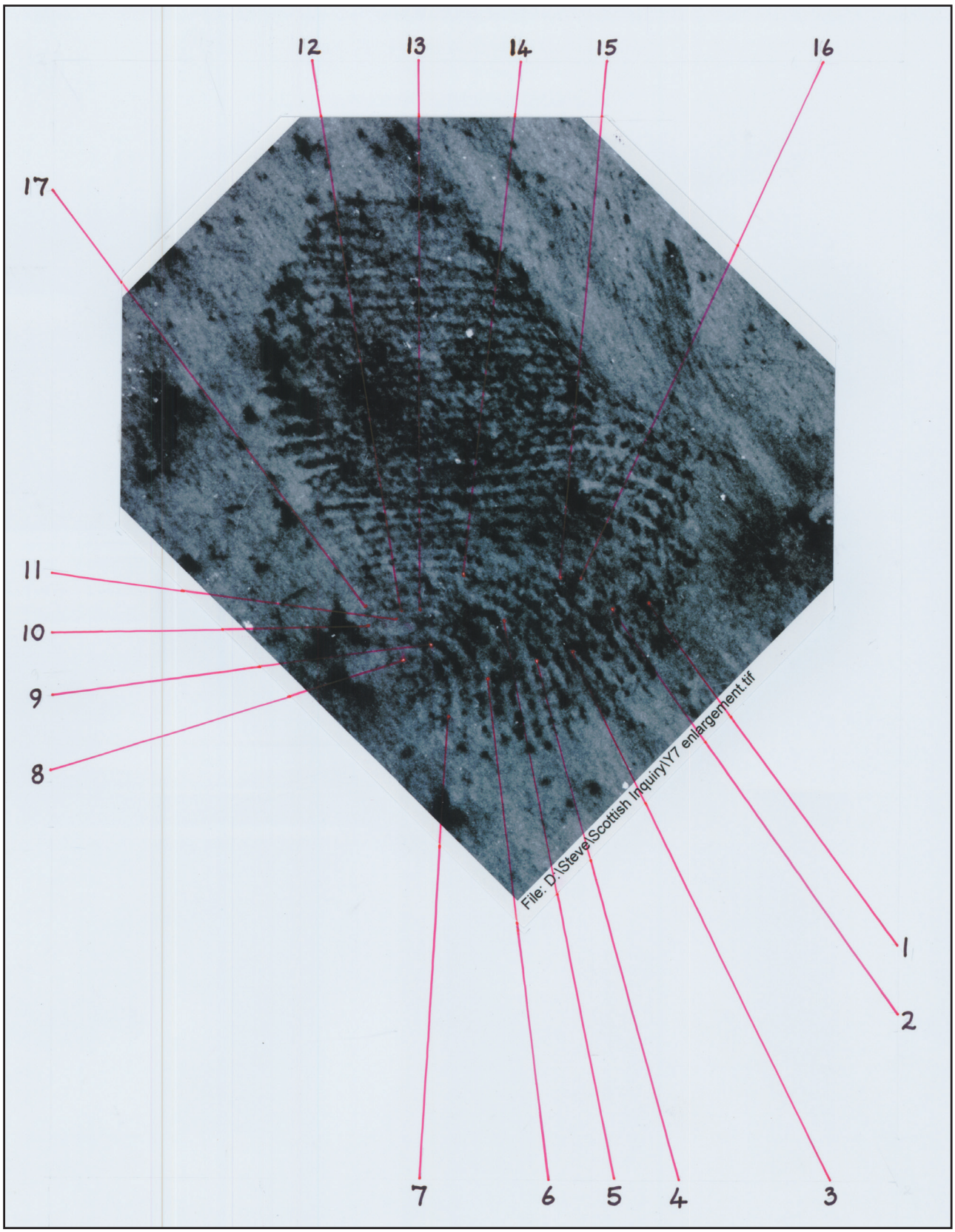
25.3. Given the overlap in the points relied upon by those who matched Y7 to Ms McKie and those who disagreed, the account begins with the seventeen points which SCRO found, in the lower part of the mark, and includes the evidence of others in relation to those points and the areas in which they were marked. Table 3 indicates the numbering used by SCRO and others. Oral evidence was not taken on differences that witnesses mentioned in the lower part of the mark except insofar as they were the same as, or in the vicinity of, the features SCRO had marked.

SCRO	Mr Grigg	Mr Zeelenberg	Mr Wertheim (areas)
1		2	
2		19	12
3		3	1
4	7	4	2
5	3	6	2
6	2	5	3
7	1	20	4
8			5
9		7	6
10			
11			7
12			7
13			7
14	5	8	10
15		1	11
16		16	11
17			

Table 3: Y7 – numbering of points used by SCRO and others

25.4. The mark and print, as charted by SCRO,[1] are shown in figures 8 and 9 respectively at 50% of their original size. SCRO's seventeen points are considered in two sections. The features in the SCRO charting were numbered clockwise but it was more convenient to address them by reference to examiners' starting points. SCRO points 9 and 1-7 are considered in Section 1 and the remaining SCRO points 8 and 10-17 in Section 2. My conclusions on individual points are noted.

1 FI_0167A SCRO Phase 1 Comparative Exercise Enlargement of Y7


12
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17
11
10
9
8
1
2
7
6
5
4
3
File: D:\Steve\Scottish Inquiry\Y7 enlargement.tif

Figure 8

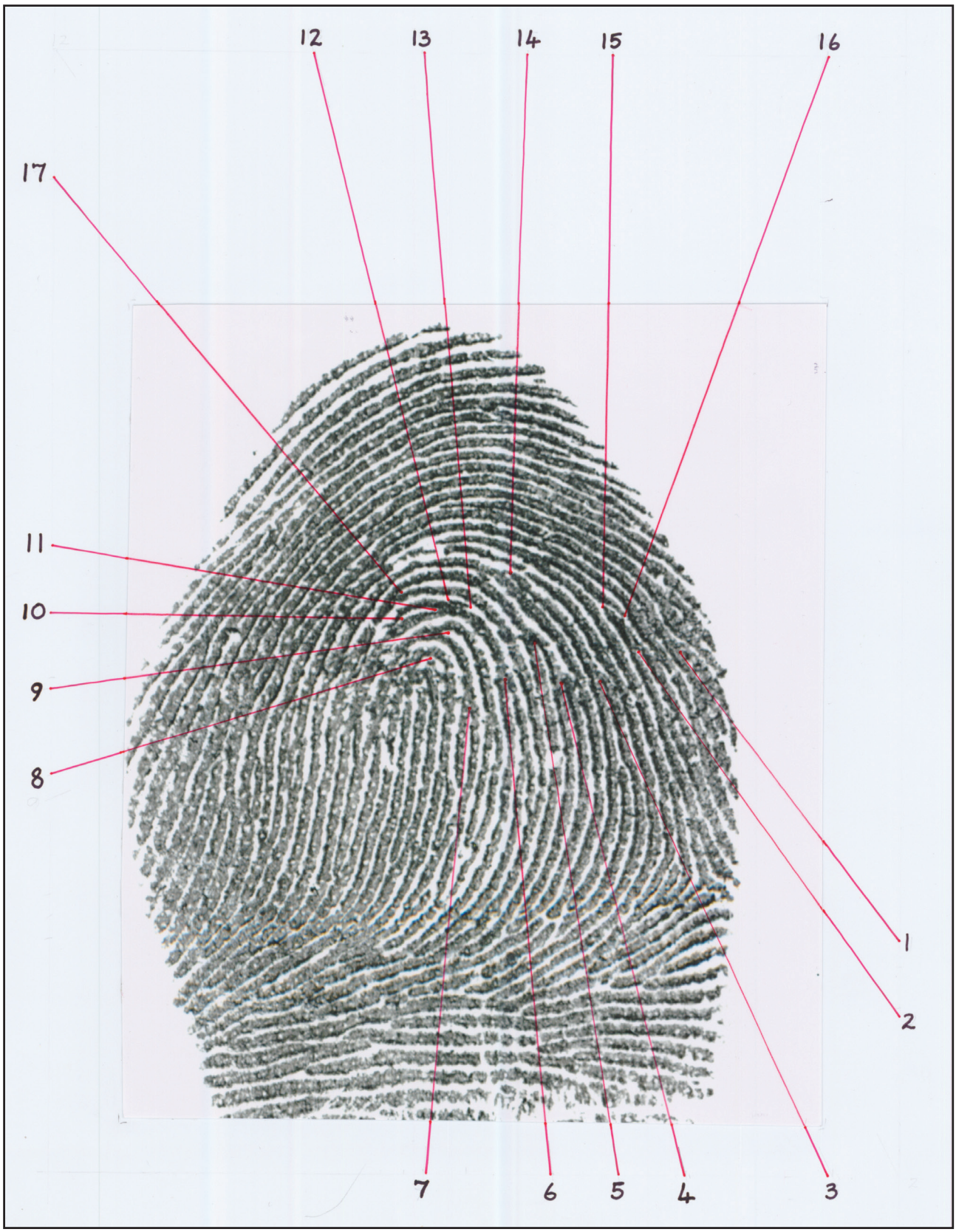

Figure 9

25.5. In Section 3 additional chartings, using images not available to SCRO at the time of the initial identification, by Mr MacPherson, Mr Swann and Mr Mackenzie are considered, these chartings being relevant to the separate question whether the identification of Y7 can be substantiated by reference to any source materials that were not available to SCRO when the mark was first identified.

25.6. Section 4 is my assessment of the evidence on the lower part of the mark.

25.7. Section 5 considers evidence on the upper part of the mark, in particular a feature that has come to be known as the Rosetta characteristic, and broader questions of movement and whether or not the mark was the product of a single touch.

25.8. Section 6 contains my overall determination on whether Ms McKie made the mark Y7.

Section 1: SCRO points 9 and 1 – 7

25.9. Witnesses spoke of looking for "a target area of characteristics"[2] or "it does need a clear starting point to begin a comparison and that will generally be a clear group of features in a particular position within the print which can be easily found on the control print."[3]

25.10. A suitable point of reference from which to start is SCRO 9, and then to continue with other points to its right.

25.11. Mr MacPherson believed that when he carried out his initial examination it was the bifurcation SCRO 9 and adjacent features that caught his eye[4] and he also found the strongest features to the right of the core which became SCRO points 3, 4 and 5.[5]

25.12. SCRO 9 was also Mr Swann's clearest starting point and he worked to the right of it[6] indicating "I usually sort of home in on what is called the centre core of the pattern. On here the pattern is not very clear… and the most significant feature that I homed in on is what you referred to earlier on as the banana-shape bifurcation in the centre core going downwards."[7] Mr Mackenzie also recalled that his target area and starting point was from the core area out to the right.[8]

25.13. Points 9 and 1-7 were presented by SCRO as eight bifurcations in the bottom area of the mark and appearing to be almost in a row.

2 Mr Mackenzie 29 September page 27ff
3 Mr Grigg 29 September page 10
4 Mr MacPherson 28 October pages 41-42
5 Mr MacPherson 28 October pages 44-45
6 Mr Swann 21 October pages 44-49, FI_2110.03 and FI_2110.04
7 Mr Swann 21 October page 44
8 Mr Mackenzie 1 October page 49

SCRO Point 9

25.14. During the Inquiry SCRO 9 was variously described as a "humpback bridge"[9] or having a "banana shape". In the print it is a bifurcation downwards just above the core with a distinctive rising curve on the right or topmost ridge as it leaves the bifurcation. It is towards the bottom left of the image of Y7.

25.15. Most witnesses agreed that there was a matching bifurcation in mark and print, though there were some differences of view.

25.16. Mr Zeelenberg did not agree, questioning whether the shapes in the mark and print corresponded.[10]

25.17. Mr Grigg initially saw point 9 as two parallel curving ridges[11] until he was shown the Kent image[12] and then he accepted that this image demonstrated more clearly that it was a bifurcation. He remarked "It is possible that if one referred to this print one would make a different interpretation."[13]

25.18. In Phase 2 of the comparative exercise Mr McGregor noted it could be said to be within tolerance "at a push".[14]

25.19. SCRO 9 was in Mr Wertheim's area 6. He said that on a stand alone basis it was within tolerance.[15] However he had three possible interpretations[16] including a possible ridge ending between SCRO 8 and 9.[17] The one in which he placed the most confidence in 1999 was that it was a bifurcation with ridge ending beneath[18] and this was the opinion advanced by him at Ms McKie's trial.[19]

25.20. Conclusion: The overwhelming evidence, with which I agree, is that SCRO 9 is a matching bifurcation in mark and print.

SCRO Point 1

25.21. SCRO saw a bifurcation in the bottom right-hand corner of the mark and in the plain impression of Ms McKie's print towards the right edge mid-way down.

25.22. Views differed. Was there an observable characteristic in the mark? If present, was it near the edge? If it was, what were the implications of this? There was also a difference of view as to whether the feature was a ridge ending or bifurcation.

25.23. Mr MacPherson drew it as a bifurcation down in FI_2810.05.[20]

9 Mr Mackenzie 27 October page 50
10 FI_0134 Mr Zeelenberg Phase 2 Comparative Exercise
11 e.g. FI_2909.09
12 TS_0006
13 Mr Grigg 29 September pages 60-63, 78-79
14 FI_0129 Mr McGregor Phase 2 Comparative Exercise
15 Mr Wertheim 23 September pages 27-28
16 FI_2309.05
17 FI_0130 Mr Wertheim Phase 1 Comparative Exercise, Mr Wertheim 23 September pages 25-26, 28-30 and FI_2309.06
18 Mr Wertheim 23 September pages 29-30
19 Mr Wertheim 23 September page 31
20 See the reader's guide for the numbering system for such 'captured images'.

25.24. In Phase 2 of the comparative exercise Mr McGregor called it a "speculative point" and Mr Grigg said the bifurcation indicated by SCRO on the print could not be seen on Y7.[21]

25.25. Mr Wertheim's original working notes[22] recorded "no feature observed – on edge of print (in smudge?)." When he studied the image under higher magnification he was able to see a clear point in this location which was open to interpretation as either a ridge ending or a bifurcation. While he could not disagree with the proposition that a bifurcation was present his preferred view was that the point was unreliable because it was at the edge of the mark and lacked clarity.[23] Mr MacPherson disagreed with Mr Wertheim that this was at the edge of the impression. A green line on FI_2810.07 drawn by Mr MacPherson showed the edge, as he saw it, further to the right.

25.26. Mr Zeelenberg saw "similarish" features in mark and print.[24] In his Phase 2 response[25] he said there was a bifurcation "similar by location and type". Mr MacPherson, when he was shown Mr Zeelenberg's slide of point 1 as a ridge ending,[26] adhered to the view that it was a bifurcation but accepted that a ridge ending was a tenable interpretation.[27]

25.27. Mr Swann had not marked a feature in his charting HO_0104. In his Phase 2 response he agreed with SCRO that there was a bifurcation although in referring to the copy charting that he produced to the Inquiry[28] he viewed it as a ridge ending.[29] The transcript recorded Mr MacPherson, when addressing Mr Swann's ridge ending interpretation, as having said "So there is an event in that area, a feature in that area. Whether it is a bifurcation or a ridge ending (shrugged)."[30]

25.28. Mr Mackenzie also saw it as a ridge ending. It was point 5 in his Tulliallan presentation where he described it as a ridge ending upwards.[31] It appeared to be at the edge of the enlargement of the "original form" that he used.[32] In his PowerPoint presentation[33] it was slide 7 and drawn as a ridge ending.[34]

25.29. Conclusion: Although close to the edge of the mark the point can be seen. I find it impossible to determine whether it is a ridge ending or a bifurcation. I consider it to be an 'event' that is open to either interpretation.

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21 FI_0126 Mr Grigg Phase 2 Comparative Exercise
22 March 1999; FI_0118 pdf page 31 Inquiry Witness Statement of Mr Wertheim
23 Mr Wertheim 22 September page 122 and FI_2209.10
24 Described as his point 2 in FI_0099 Mr Zeelenberg Phase 1 Comparative Exercise and AZ_0061 slide 49
25 FI_0134 Mr Zeelenberg Phase 2 Comparative Exercise
26 AZ_0061 slide 49
27 Mr MacPherson 28 October page 70
28 TS_0019
29 Mr Swann 22 October page 61
30 Mr MacPherson 28 October page 76
31 CO_0059 pdf pages 12-14
32 CO_0059 pdf page 13 - the image of the print. Mr Mackenzie explained that the images used on these were based on the original mark Y7 from Strathclyde Police and an original police elimination form which he thought gave the clearest impression - Mr Mackenzie 30 September page 74.
33 TC_0024
34 Mr Mackenzie 30 September page 69

SCRO Point 2

25.30. In the print this is a bifurcation in the same ridge that ends at SCRO 15. It is drawn in FI_2810.05 (Mr MacPherson). The dispute was whether a bifurcation existed in the mark.

25.31. It was Mr Mackenzie's point 6[35] and Mr Swann's point 15.[36] Both agreed a bifurcation.

25.32. Mr Grigg, Mr Zeelenberg and Mr Wertheim all saw continuous ridges. In his Phase 2 response Mr McGregor said the ridge was broken and fragmented on the mark and did not split in two.

25.33. Mr Grigg in his Phase 2 contribution said the bifurcation in the print did not appear on the mark and noted, in commenting on Mr Wertheim's relevant area (area 12), that he observed a continuous ridge in Y7.[37]

25.34. Mr Zeelenberg drew a continuous ridge in the mark and said the bifurcation was absent.[38]

25.35. Mr Wertheim's interpretation, when looking at image FI_2209.14, was continuous, straight ridges adjacent to point 2 in the mark and no evidence of a bifurcation. His original working notes recorded a ridge ending in Ms McKie's print compared with a "smooth ridge, ridge bulge, or short ridge (in smudge?)" in the mark and a conclusion that the point was out of tolerance. In commenting on Mr Swann's evidence relative to Mr Kent's image he still saw nothing in the mark.[39]

25.36. Mr Leadbetter at Phase 2[40] in commenting on Mr Wertheim's observations on area 12 said "too close to the edge of Y7. Should not be regarded seriously as a feature." In the same Phase commenting on SCRO's contribution, he confirmed SCRO's feature as present.

25.37. Mr MacPherson at Phase 2 said Mr Wertheim had misinterpreted area 12 in indicating straight ridges.[41] During his oral evidence when he drew the feature on Mr Wertheim's charting[42] he observed that the left leg was very thin but said the Inquiry should be able to see the underlying detail that he had drawn.[43]

25.38. Conclusion: Two different interpretations of SCRO 2 have been advanced, one that it is a bifurcation and the other that it is a continuous ridge. The faint line, described by Mr MacPherson as forming a bifurcation, can be seen in the mark. It is so faint and different in shape to the bifurcation seen in the print that I cannot exclude the alternative interpretation of a continuous ridge. I find therefore that the point is inconclusive.

35 CO_0059 pdf pages 12-14 and TC_0024 slide 8
36 HO_0104
37 FI_0126 Mr Grigg Phase 2 Comparative Exercise
38 AZ_0061 slide 49 (his point 19)
39 Mr Wertheim 23 September page 55ff and FI_2309.10
40 FI_0138 Mr Leadbetter Phase 2 Comparative Exercise
41 FI_0173 Mr MacPherson Phase 2 Comparative Exercise
42 FI_2810.07
43 Mr MacPherson 28 October pages 67-68

SCRO Point 3

25.39. In the print SCRO 3 is a bifurcation about half way out to the right from the core. Most witnesses agreed there was a matching bifurcation in the mark. There were some differences of view.

25.40. It was Mr Mackenzie's point 10 and he described[44] and drew it as a ridge ending.[45] It was Mr Swann's point 5.[46] He agreed with the SCRO feature[47] seeing it as a ridge ending or bifurcation.[48] The transcript reads: "Q: That lower feature, would that be again a bifurcation? A: Yes, a bifurcation. Well, it is debatable, bifurcation, ridge ending. One can never be absolutely certain."

25.41. Mr Grigg in his charting at Phase 1 to show points of difference (FI_0168A) did not match SCRO 3 in mark and print. He did not see them as a pair. In Y7 SCRO 3 was his point 7, a bifurcation. In the print his point 7 referred to SCRO 4.

25.42. Mr Wertheim in his original working notes described the features in mark and print as outside tolerance. But at Ms McKie's trial and in his evidence to the Inquiry he accepted them as a matching bifurcation in mark and print.[49]

25.43. Mr Zeelenberg questioned whether the shapes of the bifurcations in the mark and print corresponded.[50] Mr Halliday, in commenting at Phase 2 on Mr Zeelenberg's Phase 1 contribution, took the view that the difference was due to distortion by pressure.[51] Mr Zeelenberg's point was not pursued with Mr MacPherson, preference being given by Counsel to the Inquiry to Mr Wertheim's acceptance of a match.[52]

25.44. Conclusion: The overwhelming evidence, with which I agree, is that SCRO 3 is a matching bifurcation in mark and print.

44 CO_0059 pdf pages 12-14
45 TC_0024 slide 12 and Mr Mackenzie 30 September pages 71-72
46 HO_0104
47 Mr Swann 21 October page 106
48 Mr Swann 21 October page 48 and numbered as 2 in FI_2110.04
49 Mr Wertheim 22 September page 91
50 AZ_0061 slide 40
51 FI_0146 Mr Halliday Phase 2 Comparative Exercise
52 Mr MacPherson 28 October page 107

SCRO Point 4

25.45. In the print SCRO 4 could be a ridge ending or a bifurcation depending on the impression used. The comparative exercise was based on a plain impression of Ms McKie's left thumb print and there it appears to be a bifurcation. In the rolled impression from the same elimination ten-print form dated 6 February 1997 it appears to be a ridge ending.[53] It also appears to be a ridge ending in two other, different, rolled impressions. One is in Production 189,[54] which was prepared by SCRO following examination of the fingerprints in Production 187,[55] the prints taken when Ms McKie was arrested on 6 March 1998. The other is in a charting prepared by Mr Mackenzie[56] where the impression is labelled as being from the print form taken on 18 February 1997.

25.46. If it is a bifurcation, SCRO 4 in the print is formed by the right ridge turning in and joining the left leg, with the left leg continuing up to the point that is SCRO 5. SCRO 5 is a second bifurcation so the ridge structure of SCRO 4 and SCRO 5 resembles two steps.

25.47. In the mark there is a gap between the right and left ridges at SCRO 4. If it is to be taken to be a bifurcation the question is how that gap is filled and whether the resulting shape is the same as the step in the print.

25.48. SCRO saw it as a bifurcation. Mr MacPherson drew it in FI_2810.13 but the step is not seen possibly due to his use of the mouse when drawing the detail during the Inquiry hearing.

25.49. In his comparative exercise Phase 2[57] response this was one of three SCRO points with which Mr McGregor agreed.[58]

25.50. Mr Mackenzie saw a ridge ending upwards on both mark and print.[59]

25.51. In his Phase 2 contribution, written under reference to the comparative exercise materials, Mr Swann saw SCRO 4 as a ridge ending in both mark and print.[60] His evidence at the Inquiry hearings was given under reference to the Kent image and is consistent with SCRO 4 being either a ridge ending or a bifurcation.[61]

25.52. Mr Grigg doubted if what he described as a shoulder shape in the print at this point was present in the mark. He could not see on the mark the "double step" he saw on the print (SCRO 4 and 5) as they were not the same: "the features are different. They appear in a different order and they are different types, but they have a superficial similarity and could easily be confused with each other." He rejected SCRO's interpretation.[62]

53 ST_0004h
54 DB_0012h
55 DB_0009h
56 SG_0373h - a charting Mr Mackenzie was asked by the Scottish Executive's solicitors to mark up in connection with Ms McKie's Court of Session civil case (FI_0046 para 278 Inquiry Witness Statement of Mr Mackenzie).
57 FI_0129 Mr McGregor Phase 2 Comparative Exercise
58 The others were points 5 and 9.
59 CO_0059 pdf pages 12-14 (his point 12) and Mr Mackenzie 30 September page 72
60 FI_0145 pdf page 10 Mr Swann Phase 2 Comparative Exercise
61 Mr Swann 21 October pages 45-46 and point numbered 3 in FI_2110.03
62 Mr Grigg 29 September pages 36ff, 86-87, 89-90, FI_0168A Mr Grigg Phase 1 Comparative Exercise Enlargement of Y7 and FI_2909.18

25.53. Mr Wertheim thought the point had a stronger appearance of a ridge ending though he could not be absolute. He considered that if it was a bifurcation the shape of the "stair steps" was "all wrong".[63]

25.54. Mr Zeelenberg was concerned that the ridge detail did not match. In the mark he saw a symmetrical bifurcation with a small interruption. If there was a disconnection (i.e. a ridge ending) it was the left leg that was disconnected. In the print the left leg was straight and the right leg could be a ridge ending or could form a bifurcation "when it bends to the left line." Having referred to other prints, Mr Zeelenberg's view was that it was truly a ridge ending.[64]

25.55. Conclusion: In the print there is ambiguity whether SCRO 4 is a ridge ending or a bifurcation. In the mark also the point requires interpretation and different interpretations were offered. These interpretations cannot be considered in isolation from witnesses' interpretations of other points in the immediate vicinity. Taking the point in isolation, it appears to be a ridge ending. If a ridge ending, in the mark it is on the left of the continuing ridge, not on the right of the continuing ridge as it is in the print. If it is a bifurcation then I agree that the shape does not correspond with the shape in the print. Therefore I do not consider this point to be reliable.

SCRO Point 5

25.56. This is a bifurcation downwards in the print. The ridge that continues up from SCRO 4 curves to the left and stops at the point where it joins the adjacent ridge.

25.57. As noted above, in the print, and considering SCRO 4 as a bifurcation, the ridge structure of SCRO 4 and SCRO 5 resembles two steps.

25.58. In the mark at SCRO 5 there is a gap between the top of the ridge continuing up and the adjacent ridge on either side. Different interpretations were suggested.

25.59. In his Phase 2 contribution Mr Swann saw SCRO 5 as a bifurcation[65] and in his evidence at the Inquiry hearings he indicated the relevant feature in the Kent image saying that it was either a ridge ending or a bifurcation.[66] Mr Zeelenberg took it to be a ridge ending.[67] Both Mr Grigg and Mr Wertheim considered that it could be either a ridge ending or a bifurcation. Mr Mackenzie marked it as a bifurcation downwards.[68]

25.60. In order for there to be a match at SCRO 5 including a match in relative ridge counts not only has there to be a bifurcation but that bifurcation has to be formed by the ridge that ascends from SCRO 4 joining the ridge to its left. Mr MacPherson viewed it in this way when studying the comparative exercise image,[69] though he observed that the connecting ridge was "very faint".[70]

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63 FI_2209.18
64 Mr Zeelenberg 7 October pages 34-35
65 FI_0145 pdf page 10 Mr Swann Phase 2 Comparative Exercise
66 Mr Swann 21 October pages 45-46 and point 1 in FI_2110.03
67 Mr Zeelenberg 7 October page 35
68 Mr Mackenzie 30 September page 72
69 His evidence on a separate charting produced during the hearing is considered in Section 3 below
70 Mr MacPherson 28 October pages 109-110 and FI_2810.13

25.61. This was point 3 in Mr Grigg's charting.[71] He considered it to be a bifurcation in the print but a ridge ending in the mark.[72] He accepted that it was possible to assess the features as matching if considered in isolation.[73] Taken as a bifurcation joined to the ridge to the left[74] there was a consistency of ridge counts to the core in mark and print, but he considered that it could as easily be joined to the ridge to the right in which case not only was the step shape absent but the ridge counts to other points were out of sequence.[75]

25.62. Mr Wertheim drew it as a ridge ending[76] or a bifurcation.[77] The latter is drawn to match Ms McKie's print. His oral evidence was primarily by reference to FI_2209.16. His view was that the ridges that formed SCRO 4 and SCRO 5 could be drawn as joined together in such a way as to produce a configuration that roughly matched but that that was to "shoe horn" them to fit.[78] In the print each of the two bifurcations was formed by the right-hand ridge turning to the left. As he drew SCRO 4 and 5, he connected the ridges by the yellow lines. In the case of the upper bifurcation at SCRO 5 he drew the right ridge turning to the left but for the lower SCRO 4 it was the left ridge that he saw turning to the right to form the bifurcation. The ridge paths did not match and failed to reproduce the characteristic step formation in the print.

25.63. Conclusion: I am unable to say if SCRO 5 is a bifurcation or a ridge ending. I accept that it is an 'event' but the nature of the event is uncertain. Taken in conjunction with SCRO 4 I do not see the same step formation in the print reproduced in the mark.

71 FI_0168A Mr Grigg Phase 1 Comparative Exercise Enlargement of Y7
72 Mr Grigg 29 September page 36
73 Mr Grigg 29 September page 74
74 FI_2909.19
75 Mr Grigg 29 September page 72
76 FI_2309.08
77 FI_2209.18 (where he was discussing SCRO 4, 5 and 6)
78 Mr Wertheim 22 September pages 145-146

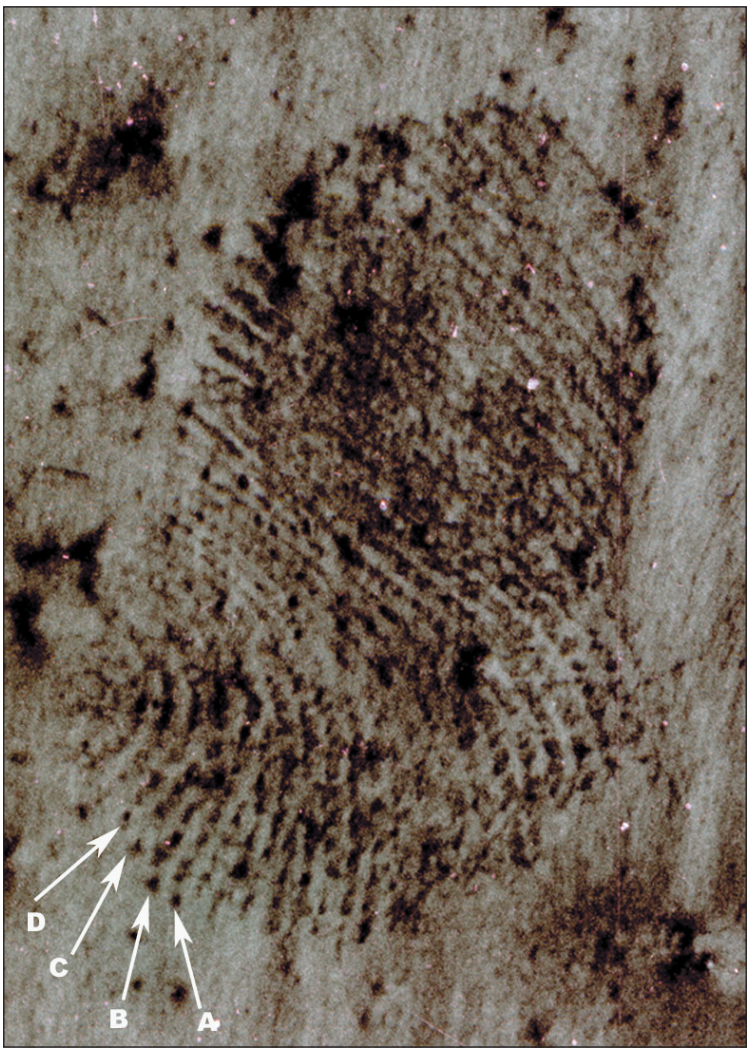

Figure 10

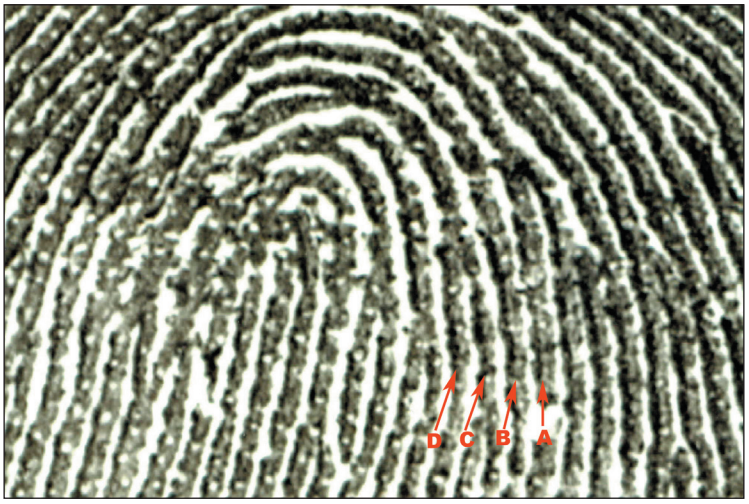

Figure 11

SCRO Point 6

25.64. In order to follow the detail of the discussion among the witnesses it is necessary to introduce common references for the critical ridges. This section of the mark is in figure 10.

25.65. In the print SCRO 6 is a bifurcation formed by ridges C and D, one intervening ridge (B) to the left of SCRO 5 (the left leg of which is A) – see figure 11. Mr Wertheim described it as "a clear bifurcation, symmetrical, even, very gradual, the ridges on both sides straight, the bifurcation opening downward."[79]

25.66. In the mark the ridge corresponding to the left leg of SCRO 5 is again labelled A. To the left of that there are two short lengths of ridge (B and C) that come into contact with a blotch half way up ridge A. For a match, ridge B must be part of an intervening ridge that continues above the blotch. Also, ridge C would have to be viewed as part of a bifurcation formed by connection to the ridge which is next left (ridge D).

25.67. In understanding the evidence of Mr MacPherson, nothing turns on the precise location of the dot for SCRO 6 in the SCRO charting FI_0167A because Mr MacPherson's evidence was that it could have been positioned higher up ridge C.[80] The crux of his evidence was that there was a bifurcation formed by ridges C and D and that is how he drew it in FI_2810.14. He explained that he saw evidence of pressure in the area of SCRO points 1-9[81] and he accepted that there might be the appearance of a ridge ending at SCRO 6 (i.e. ridge C in figure 10) but in his opinion the ridge continued, though it was "very, very faint".[82] When looking at the comparative exercise materials[83] Mr MacPherson was asked by Counsel to the Inquiry about the blotch and said there was a thickening of the ridge (ridge C) which produced an apparent connection to the *right*, "but actually it is joined to the *left*-hand ridge" (i.e. ridge D).[84] He agreed that it was an area of interpretation and judgment that might produce an alternative view by other experts.[85]

25.68. In his Phase 2 contribution Mr Swann agreed SCRO 6 as a matching bifurcation in mark and print and he discussed this point by reference to the Kent image during the hearing.[86] Mr Mackenzie, too, agreed matching bifurcations.[87]

25.69. Mr Leadbetter preferred to avoid the area which included SCRO 6 because he felt that the ridge flow in the mark in that area was "not natural".[88]

25.70. The location of Mr Grigg's point 2 is the same as SCRO's point 6 in mark and print if allowance is made for a fractional difference in the positioning of the dots either

79 Mr Wertheim 22 September page 149
80 Mr MacPherson 28 October pages 111-112
81 Mr MacPherson 28 October page 108
82 Mr MacPherson 28 October pages 108, 111-112
83 Mr MacPherson's evidence relative to the charting produced at the hearing is considered in Section 3.
84 Mr MacPherson 28 October page 113
85 Mr MacPherson 28 October pages 113-114
86 FI_0145 pdf page 10 Mr Swann Phase 2 Comparative Exercise, Mr Swann 21 October pages 45-46 and point 2 in FI_2110.03
87 FI_0140 pdf page 6 Mr Mackenzie Phase 2 Comparative Exercise and point 14 in CO_0059
88 Mr Leadbetter 23 October pages 67-68, FI_2310.05 and FI_2310.06

side of ridge C in the mark.[89] In his Phase 1 contribution Mr Grigg characterised his point 2 as a bifurcation and in his evidence at the hearing he was consequently prepared to accept that this was a point in common between him and SCRO.[90] That is in conflict with his Phase 2 response to the SCRO charting, in which he disputed SCRO 6 on the basis that this was a ridge ending in the mark.[91]

25.71. Mr Wertheim's evidence is best followed by reference to his drawing of area 3 in his Phase 1 text.[92] His focus was on the ridge detail that he circled in yellow, which is ridge B in figure 10. He said that ridge B could be either a ridge ending or a bifurcation. On either of those interpretations ridge B differs from the corresponding characteristic in the print, which is a continuing ridge, and therefore Mr Wertheim cited this as a point of difference between mark and print.

25.72. Looking in closer detail at Mr Wertheim's interpretation as a bifurcation, he was referring to the possibility that there is one formed by ridges B and C, whereas Mr MacPherson saw it as a connection between ridges C and D. If the bifurcation is understood to be one formed by ridges B and C there would be a discrepancy in ridge counts relative to SCRO 5 because, for the ridge counts in mark and print to be the same, ridge B has to be an intervening ridge and not part of a bifurcation. Mr Macpherson's alternative location of the bifurcation at ridges C and D does produce a consistency in ridge counts but Mr Wertheim argued that a bifurcation in that location was highly improbable and unreliable because it required an almost 90° connection between ridges C and D.[93] His conclusion was that this was a wrong interpretation of the ridge detail.[94] As drawn by Mr MacPherson in FI_2810.14 the suggested bifurcation has a more natural curvature and not the 90° connection assumed by Mr Wertheim.

25.73. Turning to Mr Zeelenberg, the relevant passage in evidence is his discussion of his point of difference 5. This was assumed to be the same as SCRO 6 and that assumption is correct in relation to the print but not in the mark. In the mark his point 5 is on ridge B at the top of the blotch, whereas for SCRO the dot for point 6 is on the left side of ridge C. However, that does not detract from the need to address his point of difference 5 on its merits.

25.74. Mr Zeelenberg illustrated his point of difference 5 in slide 42.[95] His interpretation was that, in the mark, ridge B is a ridge ending and ridge C a continuing ridge; the point of difference being that in the print it is ridge B that is the continuing (or intervening) ridge.

25.75. That interpretation is dependent on the judgment that it is ridge C that links to the ridge structure above the blotch. It is possible, by a small adjustment to the alignment of the yellow dots in slide 42, to suggest that it is ridge B that links up.[96]

89 Mr Grigg 29 September page 75
90 Mr Grigg 29 September page 75
91 FI_0126 pdf page 9 Mr Grigg Phase 2 Comparative Exercise
92 FI_0130 pdf page 18 Mr Wertheim Phase 1 Comparative Exercise
93 The approximately horizontal red line within the oval in his drawing in FI_2209.18.
94 Mr Wertheim 22 September page 157
95 AZ_0061 slide 42 and Mr Zeelenberg 7 October pages 35-36
96 Mr MacPherson 28 October pages 123-130

25.76. Conclusion: SCRO 6 has to be considered in the context of ridges A-D in figure 10. The ridge details in the mark have been shown to be open to a number of different interpretations and I find none of them to be convincing. As a result I regard the point as being inconclusive.

SCRO Point 7

25.77. SCRO 7 is a bifurcation in the print to the right of the core on the lower end of the left ridge forming part of the bifurcation SCRO 9. In the mark SCRO 7 is very near the bottom left.

25.78. The dispute was whether a bifurcation was present in the mark.

25.79. Mr MacPherson drew the point in FI_2810.17 with a blue line to show where he saw the edge of the mark and it was also in his FI_2910.04. It was point 17 in Mr Mackenzie's CO_0059 and slide 19.[97]

25.80. Mr Grigg, Mr Zeelenberg and Mr Wertheim all said there was no bifurcation in the mark.

25.81. Mr Zeelenberg said that in the mark there was "some noise" in this area, and that the point had been teased out. Even if there could be considered to be a bifurcation, the ridge count to point 6 was out.[98]

25.82. Mr Wertheim's problem with SCRO's interpretation was that the point was on the very edge of the impression, if one ridge was reliable the other ridge was so faint as to be unreliable, and he saw no sign of the ridges on either side deviating to accommodate a bifurcation.[99] On being shown the Kent image[100] Mr Grigg and Mr Wertheim still saw no bifurcation; Mr Grigg saw evidence of the ridge moving to the side to accommodate a bifurcation[101] but Mr Wertheim did not. Mr Wertheim saw a shadow between two ridges but said that was true on other areas of the mark.[102]

25.83. Mr McGregor said there was no clear indication of the feature in the mark,[103] and Mr Leadbetter, in commenting on Mr Grigg's point of difference in this location, said that the feature did not exist on Y7.[104]

25.84. It was marked as point 10 in Mr Swann's charting HO_0104, a charting that used the Kent image of Y7. In that charting Mr Swann marked two other points (8 and 9) which were even closer to the edge of the impression. At Phase 2, when studying a copy of the comparative exercise material as charted by Mr Wertheim, Mr Swann had said of SCRO 7 and an adjacent bifurcation: "Both bifurcations are present if good clear mark is examined – I cannot see them on this copy of Y7."[105] He agreed SCRO point 7 when looking at the SCRO charting both by reference to the copy

97 CO_0059 pdf page 20
98 Mr Zeelenberg 7 October page 44 and AZ_0061 slide 57
99 Mr Wertheim 23 September page 10
100 TS_0006
101 Mr Grigg 29 September pages 79-80
102 Mr Wertheim 23 September pages 54-55
103 FI_0129 pdf page 10 Mr McGregor Phase 2 Comparative Exercise
104 FI_0138 pdf page 12 Mr Leadbetter Phase 2 Comparative Exercise
105 FI_0145 pdf page 4 Mr Swann Phase 2 Comparative Exercise

provided to him at Phase 2[106] and also the original of that charting shown to him during the hearing.[107] Looking to the original of the SCRO charting he said that he saw "a faint ridge coming up between the two limbs of the banana bifurcation."[108]

25.85. Conclusion: SCRO 7 is very close to the edge of the mark and while I accept that there appears to be an event it is so indistinct as to be indecipherable.

Commentary on SCRO points 1 - 7 and 9

25.86. In the conclusions reached in this Section SCRO points 9 and 3 are found to be a match. When examined on their own, points 1 and 5 are either ridge endings or bifurcations and point 2 a bifurcation or a continuous ridge, and the remaining three points are unreliable. The pattern of points 4 and 5 when taken together is not reproduced in the print.

25.87. Underlying these individual conclusions there is a broader theme relating to the reliability of the 'similarities' as viewed by SCRO. Two of the eight characteristics, points 1 and 7, are on the edge of the impression and there is reason to doubt that the detail in that area of the mark has sufficient quality to be reliable. For the rest, there was a measure of agreement among the witnesses that a number of ridge characteristics in Y7 corresponded approximately to ridge characteristics in the left thumb print of Ms McKie, but there were differences of view as to the correct interpretation of the characteristics as ridge endings or bifurcations.

25.88. To take SCRO 6 as an example, this could be interpreted as a ridge ending or a bifurcation; and, if a bifurcation, it could be one where the bifurcation is between ridges B and C or C and D in figure 10. Commenting specifically on SCRO 6 Mr MacPherson agreed that it was an area of interpretation and judgment that might produce an alternative view by other experts.[109] This is significant because the rival interpretations are not marginal differences, each consistent with identification. On the contrary, only one (a bifurcation at ridges C and D) is consistent with identification, the remainder being potentially a ground for exclusion.

25.89. SCRO 6 is not an isolated exception in that regard. For all of the eight characteristics one or more of the contradictors disputed the match. There was no consensus regarding the proper interpretation of these features among those witnesses who agreed the mark was made by Ms McKie. Neither was there a consensus as to precise characterisation among those who said it was not her mark. This is a reflection of the lack of clarity of the detail in the mark.

Section 2: SCRO points 8 and 10 - 17

The core area

25.90. Views differed about the core area. While some witnesses marked features there, others chose not to do so. Mr Grigg said the ridge flow particularly around the

106 FI_0145 pdf page 10 Mr Swann Phase 2 Comparative Exercise
107 Mr Swann 21 October page 96ff
108 Mr Swann 21 October page 100
109 Mr MacPherson 28 October pages 113-114

core was a little indistinct and he started a few ridges up to be clear of that before looking for features.[110]

25.91. Mr Leadbetter said "I have steered clear of marking points around the core area. A lot of other people have gone into that area. My impression is that there is something wrong with the natural ridge flow around the core area so I avoided going there."[111]

25.92. SCRO point 8, one of the nine points considered in this Section, is in the core area.

SCRO Point 8

25.93. SCRO 8 in the print may be described as an upcoming ridge ending with an intervening (recurving) ridge lying between it and SCRO 9. In the mark it is in the bottom left section towards the edge.

25.94. Mr Wertheim's original notes[112] recorded the possibility, within tolerance, of an up-thrusting rod beneath the recurving ridge.[113] His manuscript drawing of area 5 of the mark assumes that very fine detail can be discerned because he drew, as part of the intervening recurving ridge, a small enclosure which is not in the print and so was one of his points of difference.[114]

25.95. Mr Zeelenberg, by contrast, pointed to the absence of an intervening ridge between the "blob" (i.e. SCRO 8) and SCRO 9.[115] He said of SCRO 8 "this is just noise in the mark".[116]

25.96. Mr Grigg said the ridge ending on the print did not appear on the mark,[117] as did Mr McGregor.[118]

25.97. There is a slight difference between Mr Mackenzie and the SCRO charting. For Mr Mackenzie the corresponding detail was numbered 21 and in slide 12 of his presentation.[119] He marked the ridge ending lower and to the right of the position marked in the SCRO charting.[120]

25.98. Mr MacPherson drew the feature on FI_2810.17 (in light blue) and on FI_2910.01 and FI_2910.02 as a ridge ending with a small gap before the recurving ridge and added information about other ridge features in the vicinity by reference to his supplementary chartings (see Section 3).[121]

25.99. Conclusion: This point is in an area of the mark described by some witnesses as being so unreliable that it should be avoided. Those who take a contrary view differ as to its exact position and nature. The unreliability of the area together with the

110 Mr Grigg 29 September pages 34-35
111 Mr Leadbetter 23 October page 66
112 FI_0118 pdf page 33 Inquiry Witness Statement of Pat Wertheim
113 Mr Wertheim 23 September pages 22-23
114 FI_0130 Mr Wertheim Phase 1 Comparative Exercise
115 Mr Zeelenberg 7 October pages 44-45 and AZ_0061 slide 59
116 FI_0134 Mr Zeelenberg Phase 2 Comparative Exercise
117 FI_0126 Mr Grigg Phase 2 Comparative Exercise
118 FI_0129 Mr McGregor Phase 2 Comparative Exercise
119 CO_0059 pdf page 13
120 FI_0167A SCRO Phase 1 Comparative Exercise Enlargement of Y7
121 Mr MacPherson 29 October page 11ff

lack of consistency among those who are advancing the existence of the point and my own examination leave me unconvinced as to the presence of SCRO 8 in the mark.

SCRO Points 10 and 11

25.100. In the print these are two opposing bifurcations at the left and right ends respectively of an enclosure which was referred to as "the lake".

25.101. The corresponding location in the mark is close to the left edge of the impression, a little above the core. The focus of dispute was whether, given the location, any features could be observed in the mark, and if features could be observed whether they matched. Mr MacPherson maintained that these two bifurcations were on the mark. His oral evidence on these points was by reference to his new chartings.[122]

25.102. Mr Mackenzie was prepared to agree these points[123] but they did not form part of any of his chartings because he took the view that they fell close to his fault-line or area of disturbance in the mark.

25.103. Mr Swann marked only one of these points, SCRO 11, in the charting that he sent to Mr Kent[124] but he agreed to both in his Phase 2 response.[125]

25.104. The contradictors (Mr Wertheim, Mr Grigg and Mr Zeelenberg) all said that the lake could not be seen in the mark. Mr Grigg said SCRO 10 was on the edge of the mark and no feature was visible.[126] Mr Zeelenberg said SCRO 10 was "a point teased out. It is simply non-existent." He could not see SCRO 11.[127] Referring to SCRO points 11, 12 and 13, he said "it is simply the mark does not have the quality. These are points that are simply teased out. In the absence of point 11 in the mark I call it a discrepancy. The others are simply non-existent or non-provable."[128]

25.105. Mr Leadbetter, who worked on a Wertheim image of the mark, did not include either of these points on his chart[129] as he chose not to work in this area.[130] In his Phase 2 response to the SCRO charting he agreed point 11 but said that he was unable to discern point 10 clearly enough to confirm it, an observation that should be read in the context of a general reservation expressed by him about the quality of the image in the comparative exercise materials.[131]

25.106. Mr Grigg[132] and Mr Wertheim[133] both favoured the interpretation that there was an "open field of parallel ridges" in this part of the mark. Mr Grigg's overall conclusion

122 Mr MacPherson 27 October pages 154, 160
123 FI_0140 pages 6-7 Mr Mackenzie Phase 2 Comparative Exercise and Mr Mackenzie 1 October pages 121-124
124 HO_0104
125 FI_0145 Mr Swann Phase 2 Comparative Exercise
126 FI_0126 pdf page 9 Mr Grigg Phase 2 Comparative Exercise
127 Mr Zeelenberg 7 October pages 45-46
128 Mr Zeelenberg 7 October page 46
129 TS_0005 slide 28 and FI_2310.02
130 Mr Leadbetter 23 October page 67ff
131 FI_0138 pdf pages 18-19 Mr Leadbetter Phase 2 Comparative Exercise
132 Mr Grigg 29 September page 46ff
133 Mr Wertheim 23 September pages 35-42 and FI_2309.08

about SCRO 10-13 was that the points were not present on the mark,[134] even under reference to the Kent image: "there is no indication again of that ridge flow opening out to make a lake or for the ridges to diverge to make space for a lake."[135]

25.107. Commenting on Mr Swann's evidence (his Phase 2 comments on Mr Wertheim's Phase 1) relative to the Kent image[136] Mr Wertheim said that the Kent image "does appear to have a crisper focus than the original image used by SCRO…or any of us in the first instance."[137] He saw how Mr Swann might see an island (sic) if he studied the inked print first but maintained that "if I were to interpret that without reference to the inked print, my interpretation would be that the safest interpretation is a straight ridge." Mr Zeelenberg said that the system of ridges could not be seen[138] but, in contrast, in slide 60[139] he drew ridge flow associated with SCRO 11.

25.108. Mr MacPherson's basic objection to the observations of Mr Wertheim, Mr Zeelenberg, and Mr Grigg was that their interpretations were flawed because they were based on continuous ridge flow. The "determination that movement is not present in the mark Y7 is wrong."[140]

25.109. Conclusion: SCRO 10 is said by some witnesses to be observable close to the edge of the mark. I do not see it nor do I see SCRO 11 in the mark.

SCRO Points 12 and 13

25.110. In the print these appear as the left and right ends respectively of a short incipient ridge or island immediately to the right of the lake (SCRO 10 and 11).

25.111. As with SCRO 10 and 11 some witnesses considered that the clarity in this area of Y7 was insufficient to allow any interpretation of such detail[141] and that the features were not there.[142]

25.112. In Phase 2 Mr McGregor[143] did not see these features in the mark. Mr Leadbetter, in commenting on Mr Wertheim's observations about his area 7 (which is in the vicinity of SCRO 11-13), said he could not see points 12 and 13 clearly enough to confirm them "due to the lack of clarity presented in the illustration provided."[144]

25.113. Neither of these points had featured in Mr Mackenzie's charting but he agreed with them in his Phase 2 response, subject to the qualification that they were near his fault-line.[145] Mr Swann similarly had not included them in his own charting but was prepared to accept them as matching.[146]

134 Mr Grigg 29 September page 67
135 Mr Grigg 29 September pages 80-81
136 TS_0006
137 Mr Wertheim 23 September page 52ff
138 Mr Zeelenberg 7 October page 46
139 AZ_0061 slide 60
140 FI_0173 Mr MacPherson Phase 2 Comparative Exercise
141 Mr Wertheim 23 September pages 36-37, 42-44 and Mr Zeelenberg 7 October page 46ff
142 Mr Grigg 29 September pages 66-67, even by reference to the Kent image pages 80-81
143 FI_0129 Mr McGregor Phase 2 Comparative Exercise
144 FI_0138 pdf page 19 Mr Leadbetter Phase 2 Comparative Exercise
145 FI_0140 pdf pages 6-7 Mr Mackenzie Phase 2 Comparative Exercise
146 FI_0145 pdf page 10 Mr Swann Phase 2 Comparative Exercise

25.114. Mr MacPherson's explanation was that the feature was an island (rather than an incipient) because it included a pore and he drew it twice.[147] In the print the points 12 and 13 are marked close to the right side of the lake, if not in contact with it. In Mr MacPherson's drawings the island is marked closer to the ridge above and he attributed this variation to pressure.[148]

25.115. Conclusion: It has not been demonstrated to me that either of these points, SCRO 12 and 13, exists in the mark.

SCRO Point 14

25.116. SCRO saw an upwards ending ridge in the print and in the mark a few ridges above and to the right of SCRO 9.[149]

25.117. In Phase 1 of the comparative exercise, both Mr Zeelenberg and Mr Wertheim saw this in the print but not in the mark. Mr Wertheim saw a nearby ridge ending in the print (which he said could be a bifurcation) and a bifurcation in that location in the mark. Mr Grigg showed a bifurcation in the print at this location. His point 5 and SCRO 14 are not the same in the mark. He looked without success for the corresponding feature in Y7 to the left of where SCRO mark their ridge ending 14.[150]

25.118. In oral evidence Mr Wertheim and Mr Zeelenberg said that in the print it could be either a ridge ending or a bifurcation. In either case it did not match the mark which was seen by them as having a field of continuous ridges.[151] Mr Grigg said there was plain ridge flow on the mark which was easy to trace.[152] However the point he indicated by the purple arrow in the image of the mark in FI_2909.15 does not correspond to the ridge detail that SCRO pointed to as SCRO 14.

25.119. This was another point that Mr Leadbetter said in his Phase 2 response to the SCRO charting that he was unable to discern clearly due to the quality.[153] Mr Mackenzie did not include it in his charting because of proximity to his fault-line but was prepared to agree it.[154] Mr Swann had marked it as point 16 in his chart HO_0104 and adhered to that.

25.120. Mr MacPherson had said that Mr Grigg's interpretation was wrong because he had made no allowance for movement.[155] In considering Mr Wertheim's and Mr Grigg's field of open ridges above SCRO 9, he drew the ridge structure in FI_2910.12 and that showed a pronounced gap between the ridge ending and the ridge immediately below, more pronounced than the gap, if any, in the print.[156]

147 FI_2910.09 and FI_2910.10
148 Mr MacPherson 29 October pages 40-41
149 Point 14 was not included in Production 189
150 FI_2909.15
151 Mr Wertheim 23 September pages 48-51, FI_2309.09, Mr Zeelenberg 7 October page 38ff and AZ_0061 slide 45
152 Mr Grigg 29 September page 67ff
153 FI_0138 pdf page 19 Mr Leadbetter Phase 2 Comparative Exercise
154 FI_0140 Mr Mackenzie Phase 2 Comparative Exercise
155 FI_0173 Mr MacPherson Phase 2 Comparative Exercise
156 Mr MacPherson 29 October page 38ff

25.121. Conclusion: I do not see a characteristic in the mark in this area that is either a ridge ending or a bifurcation. I prefer the interpretation of the area in which the point SCRO 14 has been marked as forming part of a field of continuous ridges.

SCRO Points 15 and 16

25.122. These points came to be known as "the handshake": two overlapping ridge endings in the print. Mr Zeelenberg called it a "deviated break"[157] and Mr Wertheim "two ridge endings that overlap" and taper in opposite directions.[158] This was his area 11.

25.123. Neither was marked in the chart that Mr Swann sent to Mr Kent.[159] Mr Mackenzie included these as his points 1 and 2 in his charting.[160] Mr Leadbetter agreed both points in his Phase 2 response to the SCRO charting.[161]

25.124. In the comparative exercise Mr Wertheim saw a ridge break in the print but a bifurcation in the mark and this contrast was the basis of his difference 11.[162] In oral evidence, he said that there was a clear point in the mark at the position indicated by SCRO 15 but he was undecided whether it was a ridge ending or a bifurcation:[163] "I am not going to get married to any of these interpretations. The image is just not clear enough to be certain."[164] His conclusion on SCRO 15 is not entirely clear but on balance it is possible to understand him as accepting SCRO 15 as a matching point.[165] His evidence on SCRO 16 was more definitive: he saw no reliable evidence of that point in the mark.[166]

25.125. Mr Zeelenberg also agreed that SCRO 15 was present in the mark. He saw an upwards ending ridge in both mark and print.[167] He disputed that SCRO 16 was present in the mark.

25.126. Mr Zeelenberg's charting of the print[168] showed two continuous ridges marked with green dots to either side of points 15 and 16. The ridges ending in points 15 and 16 were marked by yellow dots sandwiched between the two green ridges.

25.127. In discussing these points with particular reference to this charting Mr MacPherson[169] agreed that that was an accurate depiction of the print. He saw an ascending ridge and a descending ridge in the mark and said there was no doubt about it.[170] Mr Zeelenberg's view was that only one of those yellow ridges (the one ending in SCRO 15) was present in the mark, again as shown in slide 49. Mr MacPherson said that the ridge down to 16 was affected by movement[171] and

157 Mr Zeelenberg 7 October page 41
158 Mr Wertheim 22 September page 127
159 HO_0104
160 CO_0059
161 FI_0138 pdf page 19 Mr Leadbetter Phase 2 Comparative Exercise
162 FI_0123 Mr Wertheim Phase 1 Comparative Exercise
163 Mr Wertheim 22 September page 121ff and FI_2209.09
164 Mr Wertheim 22 September pages 138-139
165 Mr Wertheim 22 September pages 126-133 (particularly at pages 130-131)
166 Mr Wertheim 22 September pages 130-131
167 Mr Zeelenberg 7 October page 41 and AZ_0061 slide 49
168 AZ_0061 slide 49
169 Mr MacPherson 28 October pages 55-86
170 Mr MacPherson 28 October page 65
171 Mr MacPherson 28 October pages 57-58

compression of ridges[172] and in one passage of his evidence he said that that ridge was not present due to movement.[173] In other evidence he said that the ridge was observable to the lay person,[174] but it was very thin, "quite watery";[175] and he drew it in FI_2810.09.

25.128. Mr Grigg did not discuss any feature in this vicinity in Phase 1 of the comparative exercise. In Phase 2 he said that SCRO 16 was not present on the mark, that at SCRO 15 the ridge appeared to bifurcate, and, in commenting on Mr Wertheim's area 11 he said "Y7 is indistinct in this area but ridge tracing differs from print with additional ridge ending in print."[176]

25.129. In Phase 2 of the comparative exercise Mr McGregor[177] did not see these features in the mark but Mr Halliday,[178] by contrast, agreed both.

25.130. Conclusion: SCRO 15 can be seen in the mark but I cannot see SCRO 16.

SCRO Point 17

25.131. SCRO 17 is out of the clockwise sequence, as it was the number the Inquiry gave to the characteristic originally numbered 10 in the SCRO Production 189 for Ms McKie's trial.

25.132. In the print it is a bifurcation above the lake (SCRO 10 and 11). The question is whether a feature may be observed in the mark.

25.133. In SCRO's charting of the mark[179] point 17 is at the very left edge of the impression, to the left of SCRO 12 and 13.

25.134. In Phase 2 Mr Grigg[180] and Mr McGregor[181] said that no feature was visible in the mark and Mr Zeelenberg said that the assumed event was outside the contour of the mark (at best at the outer edge) and that as far as the ridges were visible there was no narrowing in the flow indicating an ending ridge or bifurcation.[182] Mr Wertheim also considered that there was no reliable evidence for it.[183]

25.135. Mr MacPherson drew point 17 in FI_2910.11 and disagreed with Mr Wertheim's suggestion that it might be the product of "reverse reasoning".[184] It was point 13 in Mr Swann's charting.[185]

25.136. Mr Mackenzie did not originally use the point because it was near his fault-line but he was clear that it was present, not on the edge of the mark as others said but

172 Mr MacPherson 28 October pages 77-78
173 Mr MacPherson 28 October pages 83-84
174 Mr MacPherson 28 October page 58
175 Mr MacPherson 28 October page 81
176 FI_0126 pdf page 4 Mr Grigg Phase 2 Comparative Exercise
177 FI_0129 Mr McGregor Phase 2 Comparative Exercise
178 FI_0146 Mr Halliday Phase 2 Comparative Exercise
179 FI_0167A SCRO Phase 1 Comparative Exercise Enlargement of Y7
180 FI_0126 Mr Grigg Phase 2 Comparative Exercise
181 FI_0129 Mr McGregor Phase 2 Comparative Exercise
182 FI_0134 Mr Zeelenberg Phase 2 Comparative Exercise
183 Mr Wertheim 23 September pages 45-47
184 Mr MacPherson 29 October pages 42-43
185 HO_0104

fractionally in from the edge. He drew the bifurcation and where he saw the edge in FI_0110.13.[186]

25.137. Conclusion: SCRO 17 is placed very close to the edge of the mark and although it may be an event I am doubtful if it exists.

Commentary on SCRO points 8 and 10 - 17

25.138. The contradictors spoke with one voice in saying that neither the lake (SCRO 10 and 11) nor the incipient ridge (SCRO 12 and 13) could be seen in the mark. The mark did not have sufficient clarity for the observation of such detail. They also questioned whether SCRO 17 could be observed. Mr Mackenzie while prepared to agree SCRO points 10, 11, 12, 13 and 17 did not include them in his original chartings because of their proximity to his fault-line.

25.139. My conclusions in this Section are that the points in the arc from SCRO 17 and 10/11 in the left of the mark to SCRO 16 on the right, with the exception of SCRO 15, are not observable in the mark.

Section 3: Additional material

Mr MacPherson's supplementary charting

25.140. Mr MacPherson's evidence was not confined to the comparative exercise materials. He also supported the identification by reference to additional chartings that he prepared using other source materials: the Kent image of the mark[187] and the rolled impression of the print in Mr Swann's chart M[188] that he printed out on his home computer.[189]

25.141. Neither of these sources was available to SCRO in February 1997.[190] This evidence is accordingly germane to the second question in paragraph 10 in chapter 24: can the identification of the marks be substantiated by reference to any other source materials?

25.142. Mr MacPherson recognised that this comparison was not based on the best evidence. The best image of the mark, for him, would have been one derived from the original negative,[191] and that is the image used in the comparative exercise. As for the print, Mr Swann's chart M is a copy of a blue inked rolled impression[192] sent to Mr Swann by Levy & McRae in March 1999.[193] Mr MacPherson had not studied the blue inked original prior to giving evidence[194] and when it was shown to him during the hearing he accepted that it suffered from patchiness of detail.[195]

186 Mr Mackenzie 1 October pages 124-129
187 TC_2310.01 and TC_2310.03
188 TC_2310.02 and TC_2310.04
189 Mr MacPherson 27 October pages 159-165 at 165
190 Mr MacPherson 27 October page 165
191 Mr MacPherson 28 October pages 22-23
192 TS_0010
193 TS_0009
194 Mr MacPherson 28 October page 23
195 Mr MacPherson 28 October page 35

25.143. Study of the copy of the Kent image used by Mr MacPherson[196] shows that in this image there is a faint hint that the ridge at SCRO 5 in the mark is tending to the left, which would support the SCRO interpretation of a bifurcation in that position. However at SCRO 6 the faint markings above ridge C in figure 10 are tending to the right (i.e. towards ridge B), which would detract from the SCRO interpretation.

25.144. The copy image of the print[197] that Mr MacPherson used also introduced a complication in relation to the lake (SCRO 10/11). Mr MacPherson drew attention to "damage to the ridge" evident in the print,[198] a break in the lower ridge that Mr MacPherson said was also present in the mark.[199] Counsel to the Inquiry described the break as resembling a channel dug out from the lakeside.[200] It was to be seen in the original of chart M but Mr MacPherson did not know if that break was shown in any of the other impressions of Ms McKie's left thumb.[201]

25.145. Given that the rolled impression of Ms McKie's left thumb print dated from March 1999 one possibility could be that it reflected damage to Ms McKie's finger after she gave her earlier prints. If this is the case the comparison between mark and print is not like for like. This possibility need not be explored further because Mr MacPherson's hypothesis was that the damage (i.e. the break) was also present in the mark.

25.146. The damage is not to be seen in the comparative exercise images of the mark or the print and when asked to draw the ridge structure of the lake (on the high resolution scan of the SCRO Phase 1 charting displayed on screen in the hearings[202]) Mr MacPherson drew unbroken ridges to top and bottom.[203]

25.147. Conclusion: Such is the quality of the images that Mr MacPherson was able to provide in his additional chartings that I have reservations about placing reliance on the additional detail contained in them.

Mr Swann's chartings

25.148. Reference has already been made to the charting that Mr Swann sent to Mr Kent.[204] Mr Swann produced other charts in the form of mounted photographs in both the original format and in a PowerPoint presentation.[205] These charts used the Kent image of Y7[206] and a variety of impressions of Ms McKie's left thumb:

- On the left side[207] of Chart D there are two chartings prepared by Mr Swann, one showing 16 'matching' characteristics in the lower section of Y7 on a plain impression of the thumb and the other showing 8 'matching' characteristics at the tip of Y7 on a rolled impression of the thumb.[208]

196 TC_2310.01 and TC_2310.03
197 TC_2310.02 and TC_2310.04
198 Mr MacPherson 27 October page 154
199 Mr MacPherson 27 October page 160
200 e.g. 28 October page 33
201 Mr MacPherson 27 October page 162
202 FI_0167A SCRO Phase 1 Comparative Exercise Enlargement of Y7
203 FI_2910.10
204 HO_0104
205 TS_0004
206 Mr Swann 21 October page 53
207 Those on the right were prepared by Mr Berry.
208 Mr Swann 21 October pages 53-54

- Chart L introduces a series of three chartings: M has 8 'matching' points at the tip using a rolled impression; N looks at the Rosetta relative to the Daily Mail reproduction of the thumb print;[209] and O shows 16 'matching' points in the lower section of Y7 and the rolled impression of the thumb.

25.149. The plain and rolled impressions used by Mr Swann came from the prints sent to him by Levy & McRae in March 1999[210] and the Daily Mail reproduction dates from 2000. Since those impressions were not available to SCRO when Y7 was first identified these charts are relevant to the second question. Mr Swann argued that there was a need for the Inquiry to consider a rolled impression of the thumbprint.[211] I will give consideration to his chartings of the tip and the Rosetta later in this chapter but in the present context it is necessary to address chart O, which relates to the lower section.

25.150. The introduction of a rolled impression does not add to the preceding discussion because the ridge detail in the lower section of the print is reproduced in the plain impression that was used in the comparative exercise. The significance of the rolled impression lies in the fact that it shows detail towards the tip which is not reproduced in the plain impression used in the comparative exercise. I have studied the comparison in chart O and it does not affect the conclusions that I have already formed. There are critical characteristics common to both Mr Swann's chart O and the SCRO charting, with the corresponding numbers given in the table below.

SCRO numbering	Chart O
3	9
4	8
5	7
6	15
9	4
17	2

Table 4: Y7 – SCRO points and Mr Swann's chart O

25.151. For those characteristics the key question is the proper interpretation of the mark. In discussing those points I have already taken into account the Kent image, as well as the comparative exercise image, and study of the former does not alter my conclusions.

209 Mr Swann 21 October pages 52-54
210 TS_0010
211 See chapter 24

Mr Mackenzie's third level detail presentation

25.152. Mr Mackenzie explained that in 1997 third level detail did not have the prominence in fingerprint comparison work that it came to have after courses given by Mr Ashbaugh in 1999.[212] He included an illustration of matching third level detail in his presentation to the Inquiry.[213] The source materials that he used were internet copies of mark and print.

25.153. Mr Zeelenberg commented on Mr Mackenzie's reliance on third level detail, noting the lack of correspondence of second level detail in the area being examined and also that the images used lacked the requisite quality for a third level detail analysis.[214]

25.154. The limitations of third level detail are discussed in chapter 35.[215] It would be at best a doubtful exercise applied to Y7 because of the lack of clarity of the level two detail even in original source materials. Its value is further diminished when the exercise is based on reproductions of internet images where complications arise in relation to the provenance of the reproductions. For this reason I am unable to attach weight to the third level detail presentation in this instance.

Section 4: Assessment - the lower part of the mark

25.155. This was the area in which SCRO found the points in sequence and agreement on which they based their identification.

25.156. I recognise that fingerprint examiners reach their conclusions on the basis of actual size images of marks and prints, which I have not studied. The images presented during the hearing were a means of illustrating to the fact-finder, in this case me as the Inquiry panel, the observations, interpretations and conclusions of the fingerprint witnesses. In reaching my own conclusions I have relied not simply on what I did or did not observe in enlarged images on computer screens in the hearings, but more particularly on the evidence of expert witnesses as to whether points were or were not observable by them.

25.157. I accept that in this area there is a line of characteristics that suggest some similarity in mark and print: a potential total of eight 'matching' characteristics, SCRO 1-7 and 9, framed by SCRO 1 to the right and SCRO 9 to the left with SCRO 3 in the middle. Taking these eight points alone, if SCRO were right in their overall conclusion they must be correct about each of these points. In considering whether or not they are correct it is necessary to reflect on the lack of consistency of interpretation of the type of the characteristics.

25.158. A warning bell was sounded by Mr Mackenzie's alternative interpretation of three of the points, SCRO 1, 3 and 4. It is significant that even those who agree the identification were inconsistent in their interpretations. This is indicative of a lack of clarity of the ridge detail in the mark resulting in various examiners applying wider tolerances during their analysis and, ultimately, their evaluation of the mark.

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212 Mr Mackenzie 30 September page 25

213 Mr Mackenzie 30 September pages 109-120, CO_0059 pdf pages 41-48, TC_0024 slides 36-43 and TC_0019

214 Mr Zeelenberg 7 October, pages 51-55 and AZ_0061 slides 72-78

215 From para 101

25.159. SCRO points 4-6 were the real challenges.

25.160. The ridge structure in the section of the mark around SCRO 4-6 is incomplete and affected by blotching, making the necessity for interpretation all the greater. Using Professor Champod's concept of tolerances,[216] these points, particularly when viewed in the setting of SCRO 15, 3 and 9, could have been considered to match applying a wide tolerance to allow for the gaps and blotches in the mark. The concern is that the interpretation of the ambiguities of ridge detail in the mark is being resolved by reverse reasoning,[217] using the detail in the print to interpret the mark which inevitably leads to an interpretation of the mark to fit the print.

25.161. Although there was consensus that SCRO 5 and 6 are bifurcations in the print, the appearance of SCRO 4 varies as between the plain and the rolled print of Ms McKie. On the evidence before me, I did not consider that SCRO 4 was a match either as a ridge ending or as a bifurcation. SCRO 5 appears in the mark as simply a ridge ending separated from adjacent ridges to right and left. To match the print it must connect to the ridge to the left but, if anything, it is leaning to the right. Moreover I found that the pattern of SCRO 4 and 5 did not match as between mark and print.

25.162. For SCRO 6 to match there must be one intervening ridge (B) to the left of SCRO 5 then a bifurcation formed by the next ridge to the left (C) itself connecting to its neighbour to the left (D). In the mark the various ridges are affected by a blotch, and there were many competing interpretations of this area, such that I found the point unreliable.

25.163. The differences of opinion, even among witnesses who otherwise arrived at the same conclusion, is of concern because the conclusion of a unique identity between mark and print is dependent, not on the coincident occurrence of a number of ambiguous 'events', but on the precise concurrence of a number of matching specific ridge characteristics.

25.164. The case against identification of the mark Y7 as having been made by Ms McKie is summarised in the evidence of Mr Grigg. He, like others, accepts that because ridge detail does not have consistency on deposition, it is possible to some extent to engage in reverse reasoning and to construe the ridge detail in a mark in light of the corresponding detail in the print, but his conclusion was that that could not be justified in the case of Y7. The context of this was his evidence that there was an inconsistency in ridge counts relative to SCRO 5. The suggestion was put to him that the ridge counts could be reconciled if SCRO 5 was drawn as a bifurcation to the left. Initially he accepted this before correcting himself and explaining that his ridge counts assumed the bifurcation going to the right.

25.165. The consequent exploration of the limits of "flip-flopping", that is to say construing the mark in light of the print, produced this answer: "It is always easy to confuse a ridge ending and bifurcation. They can appear interchangeable at times depending upon a number of factors but you have to look at every characteristic within the totality of all the other characteristics and when there are so many characteristics which do not agree in their position and sequence, it becomes futile to move one or

216 Professor Champod 25 November pages 109-112; and see chapter 28 para 44ff
217 See chapter 28 para 50ff

two because you do not affect the overall comparison. It is easier and much more honest to say this does not fit in the sequence of the whole fingerprint."[218]

25.166. It is acceptable to apply a degree of tolerance and some reverse reasoning provided that the reliability of the result is assessed at the evaluation stage. An examiner (and, for that matter a fact-finder) may similarly excuse an inconsistency in the reproduction of a ridge ending as a bifurcation and vice versa because, due to distortion, there may not be a precise match between corresponding minutiae even in different impressions known to come from the same fingerprint. That said, there are limits because of the paradox that applying a wide degree of tolerance to a mark of poor quality increases the risk of an adventitious match, particularly if reverse reasoning is applied to interpret the ambiguous 'events' in the mark to fit the clearer detail in the print.[219]

25.167. I could have taken the view that certain of the 'events' in the lower section of the mark are similar within an acceptable degree of tolerance. That might be said of SCRO 1 and 2, and possibly 7, and I accept SCRO 3 and 9. Thereafter, however, it became progressively more difficult to accept the SCRO interpretations and I consider that, as Mr Grigg indicated, a time is reached when the total number of points that have had to be treated as being an 'event' and interpreted in a particular way is such that it is no longer possible to arrive at a reliable conclusion. Added to that, of the other nine points that SCRO relied upon, I was satisfied as to the presence of one only, SCRO 15.

Summary

25.168. SCRO identified Y7 as having been made by Ms McKie on the basis of the lower part of the mark. I consider that the lower part cannot be relied upon for this identification. There are too many points which cannot be demonstrated, and too many others which call for a series of interpretations that I do not find persuasive.

Section 5: The upper part of the mark, the Rosetta characteristic, movement

25.169. SCRO had discounted the upper part of the mark in their original identification. At the trial in *HMA v McKie* Mr Wertheim had testified that there were points of difference in the upper part of the mark which necessitated a finding of exclusion. His evidence was based on his chartings in defence production 2 using his own image of Y7 and prints that he had taken from Ms McKie. In his chartings he circled four points in the mark that he said were not present in the print[220] and a further four points in the print that were not in the mark.[221]

218 Mr Grigg 29 September page 96
219 See chapter 35 para 56ff
220 DB_0172h pdf page 8
221 DB_0172h pdf page 4

25.170. In Phase 1 of the comparative exercise Mr Grigg, Mr Wertheim and Mr Zeelenberg all showed points of difference in the upper part of the mark.

25.171. Others took a different view. Mr Leadbetter marked matching features in the upper part of the mark, which he considered clearer with less distortion than other areas.[222] Mr Swann also charted matching features in the upper part of the mark in his charts M and N.[223]

25.172. The differences of opinion about this part of the mark can be focussed by considering the particular feature which has come to be called the Rosetta characteristic.

Definition of 'difference'

25.173. As is discussed more fully in chapter 35, the discussion of potential points of 'difference' can be clouded by lack of consistency in terminology. To take an example, Mr Swann has argued that the Rosetta is not a 'point of difference' because he has been able to demonstrate in his chart N that it is a set of matching characteristics.[224] The critical issue is not the choice of language but, rather, the substance of the arguments in support of the rival contentions that the Rosetta is a characteristic which is either (a) consistent or (b) inconsistent with identification. For consistency I have adopted the simplest, generic definition of a 'point of difference' as embracing any lack of exact correspondence between mark and print.[225] So defined, a 'point of difference' is not necessarily inconsistent with an identification. Whether it is or not depends on the reason for the difference.

The Rosetta characteristic: description

25.174. The ridge characteristic in the mark that Mr Berry first named 'the Rosetta characteristic' is indicated in figure 12. This is a particularly distinctive feature, likened by Mr Swann to the front of a 125 train and by Mr Dunbar to a "hawk-eye". The characteristic may best be viewed as a combination of three features. Firstly, there is an upper ridge which descends suddenly at an angle and either forms a bifurcation or a ridge ending in close proximity to the lower ridge. Secondly, there is evidence of a slight gap in the lower ridge. Thirdly, above and to the front of the upper ridge there is a small parallel ridge or dot.

222 Mr Leadbetter 23 October page 67
223 TS_0004
224 TS_0054 pages 1-2; see also TS_0053 pages 66 and 73 and Mr Swann 21 October pages 31-32
225 See chapter 35 para 21

Figure 12

25.175. The Rosetta characteristic was one of the four points that Mr Wertheim said were present in the mark but not in the print in defence production 2.[226] By the definition that I am adopting it qualifies as being at least a potential 'point of difference'. It is unclear from the evidence of Mr Swann when he first studied the top part of the mark in detail[227] but he said that the Rosetta was one of a number of points that initially could not be "brought in to line with the print" he had.[228] These points were "unresolved" when he prepared the charting that he sent to Mr Kent in July 1999[229] but had been resolved by the date of his meeting with Mr Gilchrist in June 2001.[230] The catalyst was Mr Berry's explanation of the Rosetta,[231] with Mr Swann subsequently also resolving the eight characteristics towards the tip in his chart M.

25.176. Mr Berry's explanation of the Rosetta is to be seen in a paper that he published in December 2002.[232] It followed his study of a copy of Ms McKie's left thumb

226 DB_0172h pdf page 8
227 Mr Swann 22 October page 101ff
228 Mr Swann 21 October pages 27-28
229 Mr Swann 21 October page 27ff
230 Mr Swann 21 October page 17ff
231 Mr Swann 22 October pages 117 and 123
232 SG_0093

print reproduced in the Daily Mail of 24 October 2000.[233] He described the reproduced print in the newspaper as "excellent…a copy of a copy admittedly but nevertheless very clear." He explained that the Rosetta was an "extremely unusual bifurcation" and said that it was to be seen in the copy of Ms McKie's print in a location displaced by 66° relative to its position in the mark. As for the cause of that displacement, he considered that when Y7 was imprinted "extreme movement caused the upper part of the mark, at core level, to move drastically to the left causing distortion."

25.177. Unfortunately, Mr Berry was unable to participate in the Inquiry hearings due to illness. He had given evidence to the Justice 1 Committee of the Scottish Parliament supportive of the identification of Y7. Two of his chartings were included in Mr Swann's chart D[234] and Mr Berry signed some of Mr Swann's charts: charts A, B, C, G and K.[235] He subsequently provided a statement to the Inquiry dated 10 August 2011 confirming that he had formed the definitive opinion that Y7 was the mark of Ms McKie.[236] Mr Berry's theory that 66° of movement explains the Rosetta was adopted by Mr Swann and explored during his evidence at the Inquiry hearing. I shall accordingly discuss that theory in the context of a review of Mr Swann's evidence and not address Mr Berry separately.

The significance of multiple touches and movement

25.178. If Y7 was made by a single touch with no movement, it was common ground among all the witnesses (with the possible exception of Mr Leadbetter) that the presence of the Rosetta characteristic was inconsistent with Ms McKie as the donor because it was a feature of the mark that was not to be found in the corresponding place in Ms McKie's print.

Phase 1 contributions of Mr Wertheim, Mr Zeelenberg and Mr Grigg

25.179. In their Phase 1 contributions each of Mr Wertheim,[237] Mr Zeelenberg[238] and Mr Grigg[239] excluded a double touch and expressed the opinion that Y7 was a single impression with continuous ridge flow, only Mr Zeelenberg adding the qualification that there was the possibility of some kind of slippage.

25.180. All three cited the Rosetta characteristic as a point of difference.

25.181. In Mr Wertheim's charting it was his area of difference 9,[240] explained as a bifurcation in the mark, the nearest equivalent to which, in the print, was a ridge ending going in the opposite direction.

25.182. For Mr Grigg the reference was to his point 4.[241] He explained that the Rosetta (described as a ridge ending) was one of the first things that he noted in the mark

233 TS_0008
234 TS_0004
235 TS_0003 and TS_0004 (the signatures are on the back of the original mountings and are not reproduced in these copies)
236 TS_0055
237 FI_0123 pdf page 3 Mr Wertheim Phase 1 Comparative Exercise
238 FI_0099 pdf page 5 Mr Zeelenberg Phase 1 Comparative Exercise
239 FI_0104 pdf page 3 Mr Grigg Phase 1 Comparative Exercise
240 FI_0164A Mr Wertheim Phase 1 Comparative Exercise Enlargement of Y7
241 FI_0104 Mr Grigg Phase 1 Comparative Exercise

because it stood out as the first feature above the core, separated from it by a distinctive open field of ridges.[242] It was not present in the print.[243]

25.183. Mr Zeelenberg marked the Rosetta as his point of difference 11.[244] His slide 46, to which he spoke in evidence,[245] showed his depiction of the ridge flows, with the Rosetta as a ridge ending to the right in the mark and the nearest equivalents in the print being ridge endings to the left.

25.184. In Phase 2 of the comparative exercise these views were criticised. For example, Mr Mackenzie, in commenting on Mr Zeelenberg's analysis, said Mr Zeelenberg had completely failed to recognise that "the mark is in more than one piece, severely distorted, swivelled and rotated" which "renders his analysis useless."[246]

Mr Kent

25.185. Although Mr Kent did not claim to be qualified to comment on the identity of fingerprints, his evidence[247] was of interest because of his related experience.[248] He heard the evidence given by Mr Wertheim at the trial in *HMA v McKie* and Mr Kent was concerned that the differences in the top part of the mark might not be relevant because they might not be connected to the lower part of the mark.[249]

25.186. He examined Y7 on the door-frame at his place of work in 1998. His observation on receiving the exhibit was that Y7 was not a clear continuous fingerprint and that it gave the impression of two areas of rather different density. He considered it was not the product of a single touch, but a double touch, two superimposed marks or one mark with movement, possibly with a change of pressure which could account for the change in density.[250] Having spent a lot of time looking at latent marks Y7 had struck him as being not a typical fingerprint made by a single finger touch. "Even at a superficial glance it was obvious that…the central area was not readable."[251] He considered that his view had been borne out by an experiment he had conducted with fingerprint experts.[252]

25.187. He thought that most people would interpret the phrase "double touch" as being the same finger touching twice, but it was not impossible that it was actually two separate fingerprints fortuitously coinciding.[253]

25.188. That coincides with the evidence that Ms McBride gave at the trial in *HMA v McKie*. She said that the upper part may not have been made by the same "author"; or it may have been made by the same author and dragged or pushed.[254]

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242 Mr Grigg 29 September pages 34-35
243 FI_0104 Mr Grigg Phase 1 Comparative Exercise
244 FI_0099 Mr Zeelenberg Phase 1 Comparative Exercise
245 Mr Zeelenberg 7 October page 39 and AZ_0061 slide 46
246 FI_0140 Mr Mackenzie Phase 2 Comparative Exercise
247 Mr Kent 7 July
248 e.g. Mr Kent 7 July pages 120-121
249 Mr Kent 7 July page 152
250 Mr Kent 7 July pages 81ff, 123ff
251 Mr Kent 7 July page 125
252 Mr Kent 7 July page 87ff
253 Mr Kent 7 July page 82
254 SG_0528 pdf pages 23, 45-46

25.189. Mr Wertheim maintained his view that it was a single touch when asked to comment on Mr Kent's evidence.[255]

25.190. The Inquiry did not explore the possibility that Y7 may be the fortuitous combination of two separate fingerprints. The principal explanation advanced by those who identified Y7 as the mark of Ms McKie was that the upper and lower parts were the product of some movement and not the fortuitous combination of two separate prints.

Patterns of movement

25.191. That said, there was no clear consensus among those who identified mark Y7 as that of Ms McKie.

25.192. SCRO's position, as indicated in Phase 1 of the comparative exercise,[256] was that there was movement and/or superimposition in the mark. Y7 was one thumb impression with line(s) of movement above SCRO 14-16 or a double touch with two or more lines of superimposition/movement. The movement was "above points 14, 15 and 16 in the middle and to the right of the upper half of the mark."

25.193. As will be examined more fully below, Mr Mackenzie considered that there was both movement and multiple touches.

25.194. Mr Leadbetter was "pretty certain it is a single touch. It has not occurred to me at any point it should be other than that."[257]

25.195. Mr Swann's preferred interpretation was "it's all one touch but with slight pulling round when it's moved because of whatever."[258] Mr Swann did not commit himself to any one specific explanation to account for the movement of the Rosetta characteristic and more generally that is true of the other witnesses who supported the identification, including Mr Mackenzie.

Approach adopted to consider the Rosetta characteristic

25.196. Given that those who support the identification are divided on the question whether the mark is a single touch or the product of multiple touches I have not considered it to be necessary to resolve that question. I shall proceed to look more specifically at the merits of the particular explanations advanced by each of the witnesses.

25.197. Having considered their evidence, it appears that the theories of those who support the identification are inferences from two premises: that the Rosetta characteristic, as seen in the mark, is a distinctively shaped feature; and that a correspondingly shaped feature can be seen in the print, though in a different location. From these two propositions they infer that this feature must have been transposed by some mechanism or another during deposition.

25.198. The first question is whether there is reliable evidence that the same distinctively shaped feature is present in mark and print. Only if that question is answered in the affirmative does the secondary question arise: whether there is a plausible explanation for how that feature may have been transposed.

255 Mr Wertheim 23 September pages 77-81 and Mr Wertheim 24 September pages 86-87
256 FI_0106 SCRO Phase 1 Comparative Exercise
257 Mr Leadbetter 23 October page 79
258 Mr Swann 21 October pages 58-59

The presence of the Rosetta characteristic in the print

25.199. Mr Dunbar observed that the Rosetta takes on a slightly different appearance depending on the particular image being viewed.[259] Those who seek to support the presence of the Rosetta in the print do so by reference to sources other than the comparative exercise materials.

25.200. While Mr Berry has argued that it is necessary to study a rolled impression of the left thumbprint,[260] there is a conflict between him and Mr Swann and Mr Zeelenberg as to whether the Daily Mail print was rolled (Mr Berry) or plain (Mr Swann and Mr Zeelenberg).[261] The argument is that a rolled impression will contain more surface area than a plain impression but there was evidence that the plain impression available to SCRO in February 1997 (used in the comparative exercise) did include the section of print in which the Rosetta is said to be located.

25.201. Both Mr Swann[262] and Mr Mackenzie[263] said that the position of the Rosetta characteristic was at the point numbered 14 in Mr Zeelenberg's charting of the comparative exercise image of Ms McKie's print.[264] The point numbered 14 is towards the right-hand edge of that image of the print and is to be contrasted with the position of the Rosetta in the mid-left of the mark.

25.202. In the mark the Rosetta is the distinctively shaped characteristic or combination of characteristics highlighted in figure 12. The feature at point 14 in the comparative exercise image of the print is not distinctive. On the contrary, it is no more than an ordinary ridge ending. The dot or small parallel ridge is absent and there is no gap in the ridge below to correspond, for example, to that indicated as Mr Mackenzie's points 39 and 40 (two ridge endings) in CO_0059.[265]

25.203. The comparative exercise materials are, accordingly, at variance with the founding premise of those who identify the mark because the first question (which is whether there is reliable evidence that the same distinctively shaped feature is present in mark and print) has to be answered in the negative.

Detailed views

25.204. As with the evidence on other parts of the mark, the Inquiry benefited from the views expressed by witnesses on the very specific detail that they observed, and interpreted, on mark and print. As by their nature these are the opinions of those expert witnesses, the narrative that follows is an analysis of their evidence, not a criticism of any of them or their evidence.

Mr Mackenzie

25.205. Mr Mackenzie's presentation that is now CO_0059 contains a total of 45 level 2 and level 3 details that are said to match, the Rosetta being number 38. This presentation covers both the lower and upper sections of the mark[266] and

259 Mr Dunbar 6 October pages 65-66
260 TS_0055
261 See chapter 24 para 41
262 Mr Swann 21 October page 62
263 Mr Mackenzie 30 September page 123
264 FI_0170A Mr Zeelenberg Phase 1 Comparative Exercise Enlargement of Y7
265 CO_0059 pdf pages 32-33
266 Mr Mackenzie 30 September page 77ff

Mr Mackenzie reached his own opinion on the mark as a whole independently of Mr Berry and before he was aware of Mr Berry's 66° theory.[267]

25.206. All of the points are plotted on one image of the mark,[268] but he used two different copies of the print to plot the corresponding characteristics in Ms McKie's left thumbprint.

25.207. The first copy of the print is a reproduction of the plain print from the Strathclyde Police fingerprint form dated 18 February 1997 (not the form dated 6 February 1997 used in the comparative exercise). Points 1-30 are plotted on that copy image in pdf page 13 of his presentation.

25.208. The second copy of the print that he used was an internet copy reproduced on pdf page 17. Mr Mackenzie indicated[269] that his points 31-45 were only on the internet image and he explained "this area was not available to me on the police elimination form."[270]

25.209. The fifteen points, points 31-45, were plotted in three groups on three separate copies of the internet image: points 31 and 32 on pdf page 27, points 33-37 on pdf page 29, and points 38-45 on pdf page 33.

25.210. Because all forty five points were not reproduced in a single image of the print, neither the relationship of these points to one another nor the pattern of movement that would have had to occur was patent.

25.211. Three observations may be made.

25.212. The first concerns the extent to which the compilation of 45 points is the product of recourse to the different images of the print. Looking to the charting of the image of the mark on pdf page 12, the points 29-32 appear as two pairs of incipients either side of the same ridge. Given their close proximity all four points might be expected to appear in the image taken from the police prints dated 18 February 1997 on pdf page 13. In fact only 29 and 30 are to be seen in that copy of the print. Points 31 and 32 are only evident on the internet copy and were marked on pdf page 27 (just to the right of circled but unnumbered 29 and 30).

25.213. The internet image is a copy and one that Mr Mackenzie acknowledged has evidence of a line of damage[271] running close to the Rosetta characteristic. Adjacent to this line of damage there is an obvious feature, a crescent shape, near the Rosetta that is not seen in any other impression of the print. This indicates that the line of damage, including the crescent, is (on the assumption that there was no intervening damage to the thumb) an artefact of the digital copying of the image, either on the internet or in Mr Mackenzie's downloading. The presence of damage in the image does undermine its reliability, particularly where it is being used to demonstrate the presence of a distinctive characteristic which is absent from the comparative exercise print, an image of known provenance.

267 Mr Mackenzie 30 September pages 78-79 and 89-90
268 CO_0059 pdf page 12
269 CO_0059 pdf pages 14-15
270 Mr Mackenzie 30 September page 89
271 CO_0059 pdf page 19 and Mr Mackenzie 30 September page 58ff

25.214. The second observation is that close examination of the images discloses that Mr Mackenzie observed duplication of ridge detail in the mark. Each of the points 26 (bifurcation to the right), 27 (ridge ending to the right), and 28 (bifurcation to the right) in the print are said to have been reproduced twice in the mark, being points 26 and 43, 27 and 44, and 28 and 41.[272]

25.215. The fact that Mr Mackenzie found duplication of points would be consistent with his opinion that the mark is the product of multiple touches[273] but this leads to the third observation which concerns the pattern of movement necessary to produce the distribution of points in Mr Mackenzie's chartings.

25.216. Mr Zeelenberg sought to explore the possible movement visually. He reproduced (in what is set out in figure 13) Mr Mackenzie's points on a single copy of the internet image of the print and on a copy of the mark,[274] clustering the points in five groups labelled A-E. Mr Mackenzie accepted that the depiction was "roughly right."[275] The Rosetta is point 38 and is in cluster B.

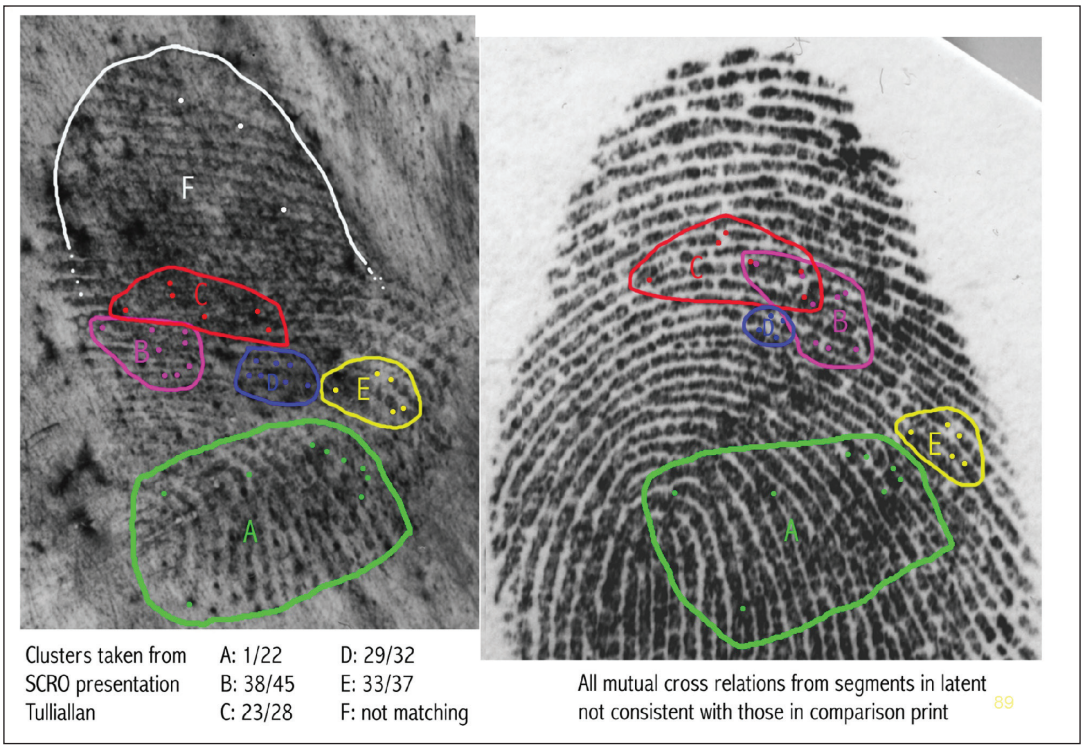

Figure 13

25.217. This is a graphic illustration of the complex pattern of movement assumed by Mr Mackenzie's charting.

1. If the top of the mark had moved relative to the bottom one would expect clusters A (green) and C (red) to be in different positions relative to each other but they remain relatively constant.

2. It is clusters B (pink), D (blue) and E (yellow) that move, but not in a consistent direction. Starting from their positions in the print (on the right of

272 Mr Mackenzie 30 September pages 108-109 and 1 October page 17; and AZ_0061 slides 81 and 82
273 Mr Mackenzie 30 September pages 108-109
274 AZ_0061 slide 84
275 Mr Mackenzie 1 October page 62 and AZ_0061 slide 89

the figure) cluster B leapfrogs cluster D and moves from the middle to the left, while D and E converge.

25.218. As Mr Zeelenberg put it when he first displayed the graphic: "The dislocation of island B is very obvious."[276] Mr Mackenzie considered that the explanation for "leapfrogging" of cluster B lay in movement and multiple touches.[277] He considered that the top section of the mark was in itself the product of more than one touch,[278] with the result that Y7 as a whole must have been made by at least three touches.

Mr Swann

25.219. Mr Swann had marked 18 points in the charting he sent to Mr Kent in July 1999 on which he remarked:

> "After a lot of thought and time this is one of those marks where the more you look at it you either become more convinced that it is identical or you can say that, because of the detail not in agreement, it cannot be so.
>
> My view is that because of the number of characteristics in agreement I cannot say it is not identical, but if a view was taken that because of the areas of dissimilarity, I could well see it being referred to as 'inconclusive'.
>
> 18 points marked, some strong and others, weak.
>
> My feeling is that it is identical in view of the number of points in agreement. Having said this there has been movement, distortion and possibly a further impression involved."[279]

25.220. He explained that these remarks were made at a time before he resolved to his satisfaction the top of the mark.[280] He adopted Mr Berry's explanation of the Rosetta in the December 2002 paper.[281] In addition, in his evidence he also sought to provide an explanation for other observable characteristics at the tip of the mark, three of which Mr Wertheim had included in the four points of difference highlighted by green circles in defence production 2.[282]

25.221. Mr Swann made a presentation[283] and spoke to a total of 32 matching points using a number of chartings based on a combination of source materials available to him.[284] These were the Kent image of the mark[285] and three different impressions of the print: (1) a blue inked plain impression was used for his points 1-16 in chart D; (2) a blue inked rolled impression was used for the eight points at the tip shown in chart M; and (3) the Daily Mail image was used for the Rosetta and the other details shown in chart N. Chart O, already discussed in Section 3 above, contained an alternative charting, using the rolled impression, of 16 points in the lower part of Y7.

276 AZ_0007 pdf page 3
277 Mr Mackenzie 1 October pages 19ff and 58ff
278 Mr Mackenzie 30 September page 74 and 1 October page 64ff
279 HO_0104
280 Mr Swann 21 October pages 30-31
281 SG_0093
282 DB_0172h pdf page 8
283 TS_0004
284 Mr Swann 21 October pages 51-56
285 TS_0006

25.222. He explained that he used the blue inked rolled impression in chart M because the points at the tip did not appear on either of the other two plain impressions. He had marked the Rosetta in that rolled impression in chart E but in his evidence he used the Daily Mail image in chart N "simply because it [the Rosetta] appears far more clearly on that Daily Mail thumbprint than it does on these [i.e. the blue inked prints], unfortunately." He said that he would rather have used the inked original prints adding: "It is on these but it is not in the same clarity…"[286]

25.223. Like Mr Mackenzie, Mr Swann did not produce a single charting displaying all 32 points. Instead, he relied on a montage. This was because he could not bring all 32 points into a consistent alignment on any one image.

> "I cannot bring the Rosetta in association with those characteristics at the tip [i.e. chart M] because of the movement of the mark and the pressure applied, ridges have been cramped together or something has happened which has caused this difference in the counting procedure. So, therefore, as far as the marks at the tip are concerned they stand alone. The Rosetta characteristic, as you can see on the top right, can be brought into line with the centre core of the pattern but not the top ones. Something has happened in the mid-section of the mark towards the tip which has caused this, well, coming together of ridges, if you would, merging, because of the pressure and the twisting and the movement. So that is why it is not mentioned. That is why the Rosetta is not on that one."[287]

25.224. Mr Swann's opinion is that the Rosetta "is not a 'point' in the singular, it consists of seven points or ridge characteristics in agreement, particularly unique characteristics with one area of 'poroscopy'"[288] and is "a positive identification in isolation."[289] The reference to 'poroscopy' brings in third level detail: the cluster of pores highlighted as point 8 in chart N.[290]

25.225. Two separate matters require to be considered:

1. the specific pattern of movement assumed and, in particular, the physical evidence of movement; and

2. the reliability of the materials used.

25.226. Although Mr Swann adopted Mr Berry's theory that the Rosetta had moved 66° he could not give an account of the precise movement of hand and finger that would produce that result. The task was complicated by the fact that there was an inconsistency in ridge counts relative to the other points at the tip shown in chart M, which might suggest that a single movement cannot explain the differential distribution of all of the points in the mark.

25.227. The passage quoted from Mr Swann's oral evidence refers to a merging of ridges.[291] He expanded upon that in a supplementary statement dated 29 July

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286 Mr Swann 21 October page 54
287 Mr Swann 21 October pages 55-56 and TS_0053 page 72 para 15
288 TS_0053 page 73 para 17
289 TS_0053 page 66 para 2
290 TS_0004 slide 15
291 Para 223 above; see also TS_0053 page 72

2011 in which he referred to "the strong wide ridge structure leading to the tip of the crime scene mark" as evidence of the pressure and movement that had taken place when Y7 was deposited.[292] The reference to physical evidence of movement within the mark itself is not entirely consistent with the evidence that Mr Swann gave at the hearing because he accepted that looking at Y7 alone (even the Kent image) there was no apparent sign or evidence of distortion.[293] Mr Swann was unable to cite any peer reviewed article that supported his argument that twisting could have produced the distribution of points assumed by him without leaving any evidence of distortion.[294] As discussed in chapter 35,[295] an article drawn to the attention of the Inquiry provides some support for Mr Swann in suggesting that a turning movement can produce differential movement of minutiae, such as the points in chart M, but that is qualified by the expectation that there will be "visible clues" of such movement having occurred.

25.228. The reference to "the strong wide ridge structure" requires separate consideration.[296] Absent any evidence of movement in the mark itself, Mr Swann's theory concerning the Rosetta would be the inferential argument summarised in paragraph 197, which assumes the reliability of the reproduction of the print in the Daily Mail. One can find what Mr Swann indicated as the corresponding feature in the rolled impression[297] but Mr Swann did not seek to support his opinion by reference to the rolled impression because his view was that the Rosetta appeared far more clearly in that Daily Mail thumbprint.[298]

25.229. Mr Swann presented the Rosetta characteristic as a combination of the eight elements (including third level detail) in chart N, but to begin with attention can focus on three of the points: his point numbered 3, which is the ridge that slopes down at an angle of 128°; point 7, the bottom tip of that ridge; and point 4, the dot or parallel ridge ("the little island ridge or dot to the right-hand side of the downward slope of the Rosetta").[299]

25.230. In the Daily Mail image the ridge below the sloping ridge (i.e. point 3) has a gap in it to the left of the tip (point 7) of the sloping ridge. Mr Swann said that that gap might just be where the ink had not taken, in other words, an artefact of the fingerprinting process.[300] On the left side of the gap is a claw shape, which Mr Swann said was an enlarged pore.[301] There was, accordingly, one feature which he considered might be an artefact and a second which he suggested was a genuine ridge detail in the print.

25.231. The proposition that the gap is merely an artefact of the image is in conflict with one interpretation advanced by Mr Leadbetter, which will be discussed below. It is also in conflict with the evidence that Mr Mackenzie gave relative to the internet copy image in his presentation. Mr Mackenzie marked the two sides of that gap as

292 TS_0053 page 66ff, the specific passage being at para 15 on page 72
293 Mr Swann 22 October pages 113 and 122ff
294 Mr Swann 22 October pages 127-128
295 See chapter 35 para 65ff
296 See para 247 below
297 Mr Swann 21 October page 55; see chart E
298 See para 222 above
299 Mr Swann 21 October pages 84-85
300 Mr Swann 21 October page 89
301 Mr Swann 21 October page 90

his points 39 and 40 (two ridge endings) and said that those points were replicated in the mark, as shown on the adjacent page of that presentation.[302]

25.232. Both Mr Swann and Mr Mackenzie were giving evidence relative to different copy images which may explain the difference of opinion between them. Nonetheless, Mr Swann confirmed that the comparative exercise image contained neither the gap nor the enlarged pore[303] and, as for the "dot",[304] he said that there was something very faint to the side and observed: "...I take the point you are making, but you get these differences on – when I say differences I am not talking about different ridge characteristics, I am talking about the different … gaps, closures, call them what you will - all over a print."[305]

Mr Leadbetter

25.233. In the presentation Mr Leadbetter prepared[306] for the Inquiry the base for his chart 11 was the photographic original of the print of Ms McKie sent to him by Mr Wertheim.[307]

25.234. In Mr Leadbetter's opinion, Y7 was affected in three ways: "distortion, caused by slippage or movement when it was deposited; excessive pressure causing some of the ridges to compress; and it is approximately 60°/70° out of normal orientation."[308]

25.235. His chartings of Y7 were very different from all the other available chartings because he deliberately avoided the ridge detail near the core of the mark where the other experts tended to concentrate.[309]

25.236. He marked fourteen features in agreement in his chart 11 but it became evident that his points 13 and 14 were in different locations as between the mark and the print. In the print, points 13 and 14 were to the right of SCRO 3 but in the mark point 14 was to the left of SCRO 3 and point 13 was on the ridge coming up from SCRO 3.[310] These two points appeared to be five ridges to the left[311] of where they were shown in the print. Mr Leadbetter was unable to explain that ridge count discrepancy other than to suggest that the ridges were "not naturally flowing".[312]

25.237. Mr Leadbetter's presentation contains a number of chartings with a range of interpretations of the Rosetta, including characterisation of it as either a bifurcation or a ridge ending and variations in relation to the location of the dot and the structure of the lower ridge.

25.238. In chart 11 he marked the Rosetta as his point 1 and the associated dot as 9. In referring to this chart he described it as a bifurcation. In chart 12 there were two chartings. In the charting on the left ("chart 12 left") the Rosetta was 2 and the

302 CO_0059 pdf page 33 and pdf page 32
303 Mr Swann 21 October page 91
304 His point 4 in Chart N
305 Mr Swann 21 October page 92
306 TS_0005
307 As mentioned earlier in the chapter, he understood this photograph to be the image reproduced in the Daily Mail.
308 TS_0005 slide 28 and Mr Leadbetter 23 October page 34
309 Mr Leadbetter 23 October pages 66-67
310 TS_0005 slide 28
311 Mr Leadbetter 23 October pages 75-77
312 Mr Leadbetter 23 October pages 78-79

dot 1. In the charting on the right ("chart 12 right") the Rosetta was 6 and the dot 7. In both of these chartings the Rosetta was described as a ridge ending. Mr Leadbetter explained "it is clearer here as a ridge ending because the enlargement I believe is different to the one on the previous chart." He had purposely marked the charts differently "to show that features can be unstable and can appear to be different."[313]

25.239. Mr Leadbetter was not consistent in his placement of the dot. In the mark it was a short line above and parallel to the sloping ridge of the Rosetta but in his drawings in chart 12 he represented it as a dot to the right of the Rosetta. He accepted that this was a different location but said that the difference was infinitesimal.[314]

25.240. As for the variations in interpretation of the lower ridge, it is appropriate to consider the two hand drawings on chart 12. In the drawing on the left the Rosetta was point 2 and the ridge immediately beneath it was drawn as a plain ridge with no break or other feature. In chart 12 right, the Rosetta was numbered 6 and the ridge below it was shown as containing a break with an enlarged pore (point 4) on the left side of the break.

25.241. The interpretation of a genuine break in the structure of the lower ridge was consistent with the evidence of Mr Mackenzie.[315] Both seemed to see a thickening of the ridge ending to the left side of the break, with Mr Leadbetter interpreting it as an enlarged pore, and Mr Mackenzie as two incipients.[316] The alternative presentation with the lower ridge unbroken is, on the other hand, consistent with the evidence of Mr Swann.

25.242. For completeness it should be noted that Mr Leadbetter explained that he did not normally do drawings[317] but thought they might be of extra assistance and illustrate different features that he considered as matching. This may explain a possible error in the placement of the enlarged pore in chart 12 right. In the print there was no intervening ridge between the Rosetta (6) and the pore (4) but in the mark the enlarged pore (4) was placed on a ridge separated from the Rosetta by one intervening ridge. Mr Leadbetter accepted that the pore should perhaps have been at point 9 in the mark.[318]

25.243. That possible error is immaterial. The more pertinent fact is neither the break nor the pore is evident in the comparative exercise image of the print. Asked whether, in that image, the Rosetta "appears just to have the pattern of one of any number of ridge endings in this fingerprint", Mr Leadbetter replied: "Yes."[319]

Mr Wertheim

25.244. Mr Wertheim discounted a twisting movement as on his ridge count there would have to be not only a rotation through 66° but a jumping of three or four ridges. He thought the mark was a single touch. But if it was a double touch then when the thumb was lifted and moved through 66° it was touched again three or four ridges

313 Mr Leadbetter 23 October page 37
314 Mr Leadbetter 23 October pages 88-89
315 Mr Mackenzie's points 39 and 40 on CO_0059 pdf page 33
316 Mr Mackenzie's points 31 and 32 on CO_0059 pdf page 27
317 Mr Leadbetter 23 October page 38
318 Mr Leadbetter 23 October pages 89-91
319 Mr Leadbetter 23 October page 87

further out with perfect alignment of the ridges in the second touch and the first touch and no criss-crossing and no overlap. This he could not accept.[320]

Mr Grigg

25.245. Mr Grigg[321] considered that Y7 was a single mark, with the closing of the furrows above the core probably indicating movement, a slight rolling action, as the thumb was placed on the surface, and variations in the thickness of ridges being due to differential pressure.

Mr Zeelenberg

25.246. Mr Zeelenberg reviewed the presentations of Mr Mackenzie,[322] Mr Swann[323] and Mr Leadbetter,[324] and prepared slides showing the displacement of ridges during different degrees of movement of a finger[325] and also, more specifically, the pattern of criss-crossing ridge flow that he would have expected to see had the Rosetta moved through 66° of rotation.[326] His thesis[327] was that had such movement occurred there should have been visible evidence of it in the mark and he highlighted Mr Swann's admission that he had not seen evidence of distortion in the mark itself.[328]

25.247. Mr Kent referred to areas of different density in the mark which suggested to him that it was more than one touch.[329] As already noted, in a later submission Mr Swann has referred to "the strong wide ridge structure leading to the tip of the crime scene mark" as evidence of the pressure and movement that had taken place when Y7 was deposited.[330] As discussed in chapter 35, Mr Zeelenberg drew attention to an article which emphasises that some physical 'clues' ought to be observable in the mark if it has been distorted by movement. Mr Zeelenberg acknowledged a number of structural properties in the mark, including thickness of the lines indicative of high pressure at the tip.[331] His evidence would suggest that a number of alternative explanations may be tenable, including Y7 being the product of more than one touch, but he videoed an experiment to show the pattern of ridge distortion that can occur when a finger tilts during a single contact and used that to support his opinion that there was nothing in the ridge flow in the mark Y7 inconsistent with the view that it could be the product of a single contact. He also advanced this pragmatic argument:

> "We have to keep in mind this is a very, very tiny print. It is smaller than a 5 pence coin. It is 18 mm and it is really very, very small. So to place two things on top of that without noticing that would be almost impossible."[332]

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320 Mr Wertheim 23 September pages 76-77
321 Mr Grigg 29 September pages 24-27
322 AZ_0061 slides 63-90, 116
323 AZ_0061 slides 99-111
324 AZ_0061 slides 124-132
325 AZ_0061 slides 108-109
326 AZ_0061 slide 102
327 Set out more fully in chapter 35 para 65ff.
328 See para 227 above
329 Para 185ff above
330 TS_0053 page 66ff the specific passage being at para 15 on page 72
331 Mr Zeelenberg 7 October page 25 ff and AZ_0061 from slide 24
332 Mr Zeelenberg 7 October page 27 and AZ_0061 slide 26

SCRO: Mr Stewart, Mr McKenna and Ms McBride

25.248. Mr Stewart[333] and Mr McKenna[334] had limited recollection.

25.249. Mr Stewart indicated[335] that "from memory there were two reasons I did not spend a lot of time in the upper part of the mark: there appeared to be a lot of movement and distortion, and at that time the candidate fingerprint form I had did not show a lot of the upper area of the mark." He said that he would have excluded the top from his comparison process because there were "considerable signs of movement, superimposition, maybe even a double touch" and he would have worked with whatever area of the mark he deemed was viable. He thought that the Daily Mail image of Ms McKie's thumb print, in which Mr Berry found the Rosetta characteristic, showed an area that "we never had the opportunity to work with."[336]

25.250. Mr McKenna also said that the form he saw "did not disclose that area."[337] The enlargement of the thumb print of Ms McKie in the book of photographs prepared for her trial (Production 189) was a rolled impression[338] but he did not recall whether the use of the rolled impression had made any difference to his approach or enabled him to see any parts of the mark he had not seen previously.[339]

25.251. Ms McBride spoke about the top of the mark twice during her oral evidence.[340] She said that in looking at the whole mark initially she had to understand "why the top was sloping the other way." She considered that the mark was "not a continuous print", that "it was broken and that it was moved at the top"[341] and so she focussed on the bottom part. "The top part of the mark was not required for the identification. I could see that it was moved…it was deemed that the top part was insufficient for our purposes at that point."[342] "There was not going to be sixteen in sequence and agreement in any part of the mark that I could see at the top."[343] "There was sufficient detail below that…to effect an identification to the 16-point standard."[344]

25.252. Two propositions run together in Ms McBride's evidence. Firstly, she appears to have addressed the top of the mark as a possible source of identical points but decided not to work with that section because there were too few characteristics there to establish identity. Secondly, insofar as she addressed the Rosetta as a potential point of difference, she discounted it by the generalisation that the mark as a whole was broken and the top part had moved.

SCRO: Mr MacPherson

25.253. As indicated earlier, by agreement Mr MacPherson was the SCRO witness who gave oral evidence on the detail of the comparison of Y7.[345] He was firm in his view

333 Mr Stewart 5 November page 84ff
334 Mr McKenna 6 November page 32
335 Mr Stewart 5 November page 84
336 Mr Stewart 5 November page 85
337 Mr McKenna 6 November page 32
338 From the form taken on 6 March 1998. See chapter 24 para 21
339 Mr McKenna 6 November page 44
340 Ms McBride 6 November pages 128-132, 143-149
341 Ms McBride 6 November pages 127-128
342 Ms McBride 6 November page 131
343 Ms McBride 6 November page 144
344 Ms McBride 6 November page 146
345 Mr MacPherson 27 October pages 139–140, 144-151, 157-158 and Mr MacPherson 28 October pages 84-107

that Mr Zeelenberg's interpretation was wrong because Mr Zeelenberg took "no cognisance of any movement".[346]

25.254. The charting in Production 152 had used a plain impression and the charting in Production 189 used a rolled.[347] Other than resulting in a minor variation in the 16 points used to illustrate the comparison, Mr MacPherson did not suggest any substantive difference between the two prints.[348]

25.255. At Ms McKie's trial Mr MacPherson had indicated that he discounted the upper part of the mark as fragmentary and insufficient for comparison.[349]

25.256. In his evidence to the Inquiry Mr MacPherson said on a number of occasions that the top half of the mark was fragmentary and insufficient, though he acknowledged that there were some observable characteristics in that section. The Rosetta was one of them and there were some other points to the outer top right of the mark. He said "It is not that I ignored the characteristics but they were not differences because of movement."[350] He accepted that at that time he did not search for an explanation of the pattern of movement because he dismissed the whole of the upper part as fragmentary and insufficient.[351]

25.257. As far as he could remember, on the elimination form that he had originally studied the Rosetta "was at the very edge of the print and because of pressure etc the Rosetta or the dot may not have been recorded."[352] His evidence coincided with that of Mr Mackenzie and Mr Swann that the original position of the Rosetta in the print was at point 14 in Mr Zeelenberg's charting which used what Mr MacPherson was referring to as 'the elimination form' (i.e. the print in the comparative exercise materials). Given that that charting was based on the print of 6 February 1997 available to Mr MacPherson when he first made his identification, the point was there to be observed in the print at that time. He agreed however that he did not make an association then.[353]

25.258. At the Inquiry he said that he could count the ridges from the core to the Rosetta but not beyond because of the presence of a blob in the middle of the mark. For that reason he approached the Rosetta in his evidence as a point in isolation.[354] The consequence was that Mr MacPherson's evidence proceeded on the basis that the mark was the product of perhaps three touches. He thought that the lower area was the product of a single touch[355] and suggested that there had been two touches at the top:[356] one producing the Rosetta and the other affecting at least some of the remaining points on the top right. He did not commit himself as to the precise sequence of the contacts.

346 Mr MacPherson 28 October page 107
347 Chapter 24 para 21
348 Mr MacPherson 27 October pages 121-123
349 Mr MacPherson 27 October page 148
350 Mr MacPherson 27 October page 140
351 Mr MacPherson 27 October page 148
352 Mr MacPherson 27 October page 148
353 Mr MacPherson 27 October page 150
354 Mr MacPherson 28 October page 98
355 Mr MacPherson 28 October pages 86-87
356 Mr MacPherson 28 October page 93

25.259. Dealing specifically with the Rosetta, he confirmed that there was a difference in ridge count as between mark and print.[357] The Rosetta was a point that was not in sequence and agreement.[358] Movement was the reason cited for the difference in ridge count. He thought that the thumb had lifted and turned.[359]

25.260. Mr MacPherson sought to illustrate the movement.[360] He gave these reasons for surmising that there had been movement in Y7: "there is destruction of the ridges; there is what I would call the no-go area, you go into it and you cannot tell how the ridges come out of that area and there also is a discrepancy in the ridge count between the mark and the known impression."[361]

25.261. He initially "roughly" mapped the line of movement between top and bottom by the same L-shaped line in FI_2710.08[362] and FI_ 2810.09.[363] In the second image the line is drawn on Mr Swann's chart M and enables a direct comparison with Mr Swann's evidence. In chart M Mr Swann identified the eight characteristics in the upper right of the print that, in his opinion, moved relative to the characteristics in the bottom half. If the line of movement lies where it was originally drawn by Mr MacPherson those points would be outside the area of movement. When that was put to Mr MacPherson he redrew his suggested line of movement in FI_2810.10,[364] but even as redrawn that left two of Mr Swann's points outside the area of movement. Accepting the inconsistency of interpretation Mr MacPherson said: "If the mark has been placed on, as I said, with two touches above my line, maybe Mr Swann's characteristics may come into alignment. But that was my difficulty I had at the time with the mark Y7. I was not sure about the top of the mark so I did not use it."[365]

Commentary on the upper part of the mark

25.262. The Rosetta is not in the same position relative to the core in mark and print. It is, therefore, a point of 'difference' in the upper part of the mark. The question is whether there is a satisfactory explanation for it consistent with a finding of identification.

25.263. Mr Kent's proposition that the top part of the mark might not be connected with the lower part was not one advanced by those who supported the identification. Having discounted the upper part of the mark initially, SCRO, Mr Mackenzie and Mr Swann all put an emphasis on trying to make the case for the upper part of the mark having been made by the same person as the lower, whom they considered to be Ms McKie.

25.264. As Mr Dunbar observed, the assumed 'Rosetta' or 'hawk-eye' takes on a slightly different appearance depending on the particular image being viewed.[366] Mr

357 Mr MacPherson 28 October pages 100-101
358 Mr MacPherson 27 October page 146
359 Mr MacPherson 27 October page 158
360 Mr MacPherson 28 October page 98ff
361 Mr MacPherson 28 October pages 101-102 and FI_2810.12
362 Mr MacPherson 27 October pages 157-158
363 Mr MacPherson 28 October pages 83-86
364 Mr MacPherson 28 October pages 91-95
365 Mr MacPherson 28 October page 95
366 Mr Dunbar 6 October pages 65-66

Mackenzie and Mr Swann both relied on a number of different images. On the evidence of Mr Pugh[367] and Professor Champod[368] such an approach may be justified in some circumstances, for example where the mark is deposited on a surface with sections in contrasting colours.[369] But even then they envisage that first generation images will be used. Mr Mackenzie used an internet copy of a print containing obvious damage in close proximity to the Rosetta. Mr Swann did have access to original impressions of Ms McKie's print[370] and used one of them as the base for his chart M. But this is the impression the reliability of which is undermined by the 'damage' that suggests a trench emerging from the lake, SCRO 10 and 11, not present in other images. That said, the Rosetta is not marked on chart M. Mr Swann continued to use the copy in the Daily Mail.[371]

25.265. I have identified two different questions:

1. Were the SCRO examiners correct in their identification of the marks on the basis of the source materials available to them?

2. Can the identification be substantiated by reference to any other source materials?

25.266. At least part of the area where it is suggested that the Rosetta is to be found in the print was to be seen in the plain print available to SCRO (i.e. the part corresponding to point 14 in Mr Zeelenberg's charting) but the appearance of the ridge in that print is not consistent with the distinctive shape of the Rosetta in the mark. In that print all that is to be seen is a plain ridge ending like many others in the print. There is no satisfactory explanation of the Rosetta to be found in the prints available to SCRO.

25.267. The evidence of Mr Swann and Mr Mackenzie relates to the second question. There is an argument that explanations based on secondary copies (either the image in the Daily Mail relied on by Mr Swann or the internet image downloaded by Mr Mackenzie) would be inadmissible in court because the provenance of the copy could not be proved.[372] Even if admissible, the question is what weight ought properly to be placed on such material. Image quality is a critical variable in fingerprint comparison work. I do not regard it as appropriate to attach weight to what are, at best, secondary copies for critical detail of features that are not to be observed in images of known provenance, such as the comparative exercise materials.

25.268. There are additional reasons for not accepting the evidence of Mr Mackenzie, Mr Swann and Mr Leadbetter.

25.269. As has been discussed in paragraphs 230-232 and 237-243 above, Mr Swann, Mr Mackenzie and Mr Leadbetter were at variance in relation to matters of fine detail including whether or not there was a genuine ridge break in the ridge below the sloping ridge of the Rosetta. Such variances do call into question the reliability

367 Mr Pugh 24 November pages 126-127
368 Professor Champod 25 November page 53
369 See example given by Professor Champod in ED_0005 page 31
370 TS_0010
371 TS_0004 Chart N
372 See chapter 30 para 12ff

of the fine detail in the source materials relied upon. Third level detail (such as the cluster of pores at point 8 in Mr Swann's chart N) has to be approached with caution[373] and I cannot place reliance on it here when there is such a conflict among the witnesses on related matters of a similar level of detail.

25.270. Mr Swann did use original source materials in his chart M, which charts eight characteristics at the tip of the rolled impression and the Kent image. He argued that this was a "stand alone identification", only eight characteristics in agreement being required for a positive identification.[374] I am unable to accept this.

1. It assumes that an identification can be made by isolating a small part of the mark without considering the mark as a whole.

2. The mark as a whole has to be considered because it is not at all persuasive to advance an explanation for some differences in one part (e.g. the points at the tip in chart M) leaving others (e.g. the Rosetta) unresolved.

3. In any event, consideration has to be given to the question whether there is physical evidence consistent with the assumed pattern of movement. Mr Swann's explanation assumes that the points at the tip have moved across a number of ridges and come to rest in a new position in perfect alignment with ridge detail in that area save for some thickening of ridges, which seems unlikely.

25.271. Mr Leadbetter also used an original image but his chartings contained alternative explanations of what may be taken to be ambiguous features. The ambiguity related to the contrasting depictions of the Rosetta in chart 12 right and left. In some images there is a gap in the structure of the lower ridge. Such a gap can be construed as merely an incomplete reproduction in the impression of the true ridge structure, and therefore of no significance in the analysis. That was Mr Swann's primary position in relation to this particular gap[375] and would be consistent with Mr Leadbetter's drawing in chart 12 left as an unbroken ridge. Alternatively, a gap in an impression can be construed as a genuine break in the ridge feature, such as two opposing ridge endings. That was Mr Mackenzie's interpretation, his points 39 and 40 being two ridge endings either side of that gap.[376] Mr Leadbetter's alternative drawing in chart 12 right shows the gap but not even that analysis is fully consistent with the opinion of Mr Mackenzie because the furthest that Mr Leadbetter went was that there was an enlarged pore (his point 4) on the left side of the gap. Mr Swann too spoke to the pore in that position.[377] A pore is a level 3 detail and is therefore not the same as Mr Mackenzie's interpretation of two ridge endings (level 2 details). The ambiguity clearly highlighted by Mr Leadbetter's two contrasting drawings suggests that the reliability of these various interpretations is open to doubt and ultimately the fact is that in the control image, the comparative exercise copy of Ms McKie's print, the distinctive configuration is absent.

373 See chapter 35 para 101ff
374 TS_0054 pages 2 and 4
375 Mr Swann 21 October page 89
376 CO_0059 pdf page 33
377 Mr Swann 21 October page 90

25.272. The conclusion of Mr Wertheim, Mr Zeelenberg and Mr Grigg could be accepted on the simple basis that the comparative exercise image of the print contains no equivalent to the distinctive Rosetta characteristic.

25.273. Even if were to be accepted, under reference to secondary images of Ms McKie's print, that the Rosetta is present in the print, the inconsistency in ridge count referred to by both Mr Wertheim and Mr MacPherson still justifies the conclusion that the Rosetta is a point of difference.

25.274. This difference cannot be accounted for by adopting the circular argument that if sixteen points[378] in sequence and agreement are found in another section of the mark there is a unique match and therefore any difference elsewhere must be explicable.[379]

25.275. Equally, the difference in ridge counts cannot be satisfactorily explained by a generalised explanation of 'movement'. Allowance must also be made for the fact that neither Mr Mackenzie nor Mr Swann could bring all four of Mr Wertheim's points[380] into alignment. On the contrary, Mr Swann accepted that there remained a ridge count discrepancy between the Rosetta and the outer points, requiring him to produce two separate chartings (M and N). The implication of that is that it must be envisaged that the mark Y7 is the product of a minimum of three touches producing the pattern of distribution illustrated by Mr Zeelenberg in figure 13 above. No explanation has been advanced to show how multiple touches could have produced such a complex pattern of distribution, including some characteristics appearing to leapfrog, without leaving any tell tale signs of criss-crossing of ridges.

25.276. There are contrasts in the appearance of some parts of the mark when viewed in its natural state on the door-frame[381] but Mr Zeelenberg sought to demonstrate by reference to his video clips that variations in ridge flow can occur in a rolling single contact and the precise configuration of the mark has been explained by the contradictors down to the level of detail that the peculiar shape of the right edge is attributable to the contours of a groove in the wood.[382] There is force in the pragmatic argument advanced by Mr Zeelenberg that it is unlikely that more than one touch will have been combined in such a small mark without leaving unambiguous evidence.[383]

25.277. The conclusion must be that Mr Wertheim's four points of difference in the top section of the mark, including the Rosetta, have not been explained satisfactorily either by reference to materials available to SCRO or by reference to any other materials. It has not been established that the upper part of the mark was made by Ms McKie.

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378 Or eight, in the case of Mr Swann's chart M.
379 Mr MacPherson 27 October pages 146-149
380 Para 169 above
381 See chapter 1
382 See chapter 1
383 Mr Zeelenberg 7 October page 27 and AZ_0061 slide 26

Section 6: Y7 findings

25.278. This chapter has addressed the question: did Ms McKie make the mark Y7?

25.279. Looking to the fingerprint evidence in isolation, I have accepted that at most six of the points relied upon by SCRO bear a degree of similarity: SCRO points 1, 2, 3, 7, 9[384] and 15.[385] Independently of any issue regarding the Rosetta that would have been an inadequate number to have supported a finding of identification in 1997. The fact that there remains no satisfactory explanation of the Rosetta reinforces the conclusion that SCRO were in error in identifying Y7 as having been made by Ms McKie judged by (1) the standard of the day and (2) the source materials then available to them.

25.280. I have taken into account a variety of additional source materials not available to SCRO in 1997 and also the evidence on third level detail, which represents an advance in the methodology of fingerprint comparison work since 1997, but I have not found any persuasive evidence to alter my conclusion.

25.281. I am also mindful that since 1997 the 16-point standard has been abandoned in Scotland in favour of the non-numeric approach. A conclusion that one could not find as many as 16 points in sequence and agreement would not have been determinative after 2006. However, I could not accept a non-numeric finding of identification because the number of level two characteristics that might be in agreement is small, such level three detail as has been mentioned is unreliable and the Rosetta is an unexplained difference.

25.282. That gives my conclusion on the fingerprint evidence in isolation but, as with any source of evidence, it ought properly to be assessed in the light of the evidence as a whole. The absence of any evidence that Ms McKie went beyond the porch at the entrance to the house[386] has to be factored in. That is consistent with a conclusion that the mark was not made by her.

25.283. Having reviewed the evidence as a whole my conclusion is that the mark Y7 was misidentified and was not made by Ms McKie.

384 Para 167 above
385 Para 139 above
386 See chapter 14

CHAPTER 26

THE MARK QI2 ROSS

Introduction

The mark and print

26.1. The mark identified as Miss Ross's right forefinger was part of a cluster of ridge detail named QI2 found on the side of a metal tin. The cluster also contained a mark identified as the right middle finger of Mr Asbury.

26.2. The side of the tin on which QI2 was found has a picture of a horse drawn tram. QI2 is located on the left side of the picture at the railed stairs to the open top deck and some of the underlying detail from the picture comes through in the image of the mark. The image of QI2 Ross has been rotated 90° clockwise to give the mark an upright appearance. The front facia of the tram (between the top of the stairs and the upper deck) shows through in the mark as the light coloured shard in the middle of the lower section of the image with the light lines of the handrail above and to the right of it. This was information available to the Inquiry. However, it is not evident that either the tin, or a picture of the tin, was available to those who examined the mark previously.

26.3. The mark is shown in figure 14 and the print in figure 15, the marked up enlargements by SCRO for Phase 1 of the comparative exercise, reproduced here at 50% of their original size.[1]

Source materials

26.4. The mark QI2 Ross was developed with the application of superglue. Miss Ross's print was obtained using powder, after her death. The impact that the process of development can have on the appearance of ridges is discussed in chapter 19[2] and has some relevance to the discussion of the features SCRO 2, 11 and 12.

26.5. With QI2 Ross there is not the complication that there was with Y7 of multiple images of the mark and multiple fingerprints taken by different individuals at different times. The comparative exercise image of the mark, chosen by Mr MacPherson and Ms McBride, was an enlargement of a Metropolitan Police scanned copy of the original image used by SCRO when the mark was first identified.[3] In addition, the Inquiry had available to it images that Dr Bleay provided with the assistance of Westminster University reproduced from the original negative.[4] Some passing reference was made to one of the reproductions obtained by Dr Bleay[5] but, with the exception of Mr Mackenzie and Mr Swann, the discussion mostly concentrated on the comparative exercise image.

1 FI_0166A SCRO Phase 1 Comparative Exercise Enlargement of QI2
2 See chapter 19 para 10
3 DB_0001h
4 See chapter 19 para 35ff
5 EA_0029

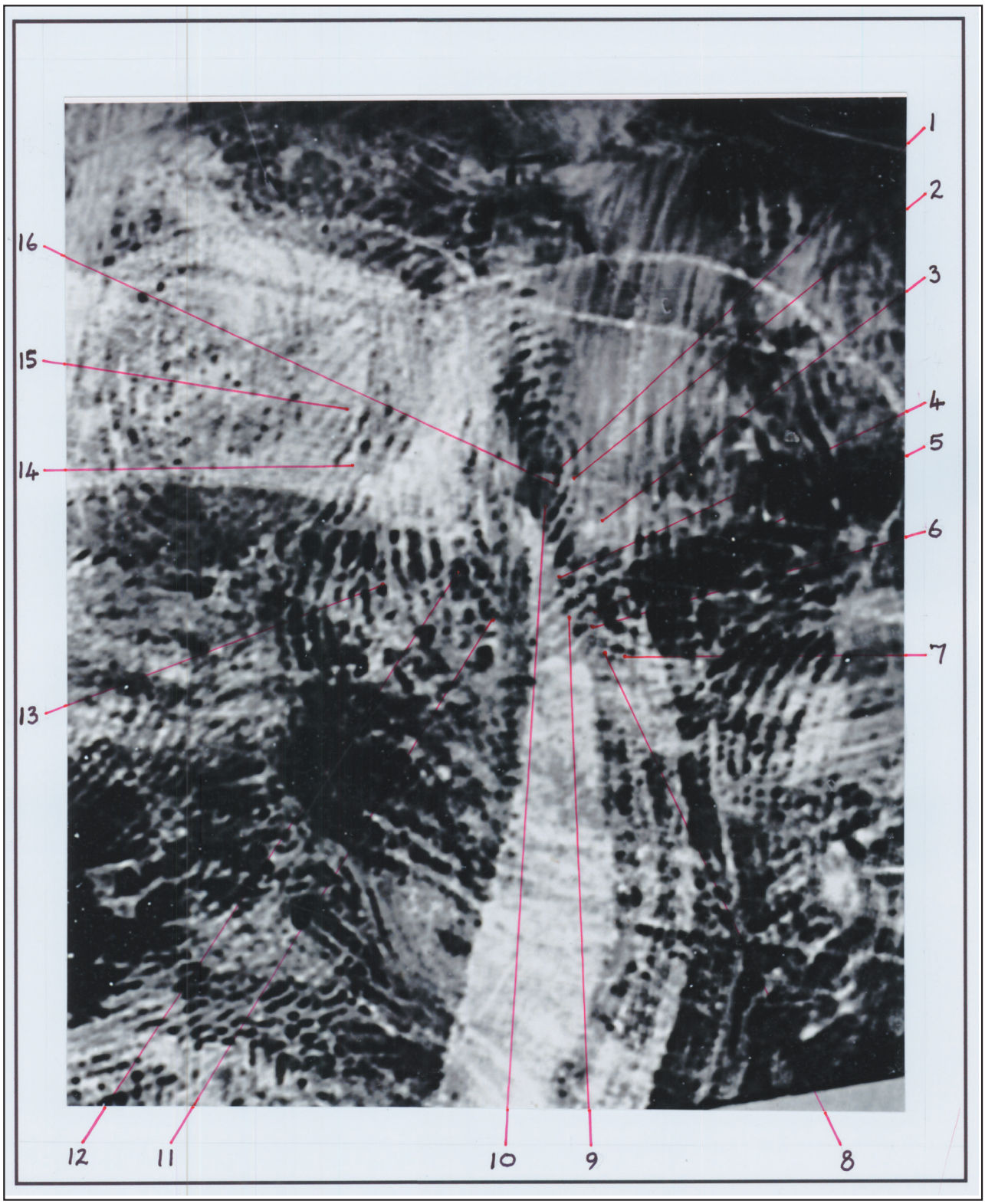

Figure 14

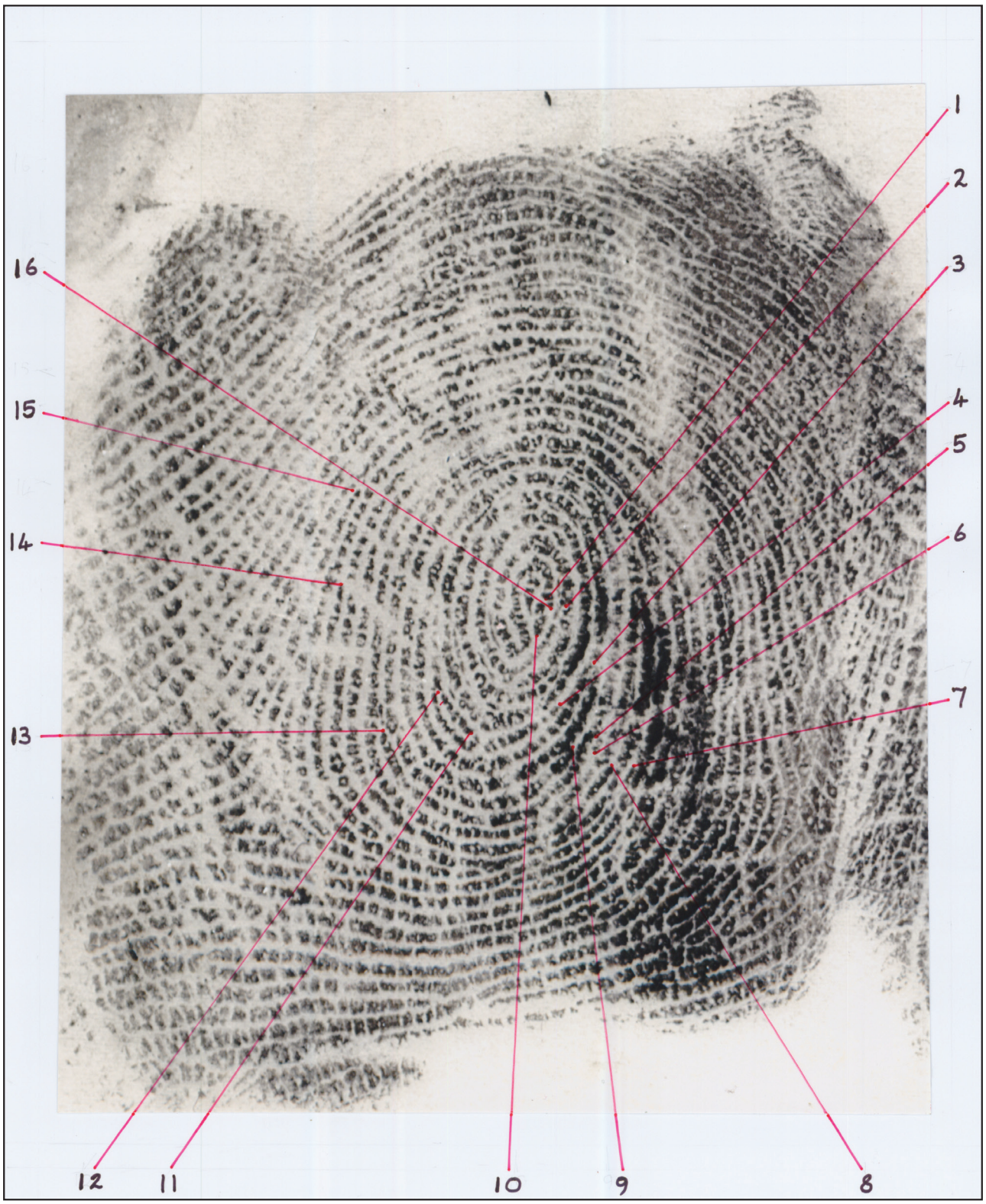

Figure 15

26.6. Mr Mackenzie gave his evidence relative to a charting that he had prepared for Mr Gilchrist in July 2001.[6] That originally contained a total of 29 points which were reproduced in a series of chartings using the same image of QI2.[7] In the reproduction Mr Mackenzie added two additional, unnumbered points: what came to be called his thirtieth point, coinciding with SCRO 7,[8] shown with a green arrow in TC_0211.05 (the mark) and TC_0211.09 (the print); and effectively a thirty-first, a pore shown circled in TC_0211.07 (the print) and TC_0211.03 (the mark).[9]

26.7. Mr Swann prepared two chartings at different times: charts H and P.[10] The image that he used was a photograph from the negative prepared for him by the Yorkshire Police Imaging Unit.[11]

26.8. The witnesses were addressing images of equivalent status, albeit with some variations in detail or contrast. I have given consideration to them all in arriving at my conclusion.

26.9. With the exception of a contribution from Mr Mackenzie on third level detail that he prepared for Mr Gilchrist in February 2002, the source materials were essentially the same as those available to SCRO when QI2 Ross was first identified.

The opinions

26.10. QI2 Ross was the second mark whose identification by SCRO was disputed. As with Y7 my task was to seek to understand the basis on which those for and against the identification reached their conclusions about this mark.

26.11. Comparison of the Phase 1 chartings from the comparative exercise showed that, as with Y7, there was a significant degree of overlap among the witnesses as to the critical features in mark and print which required to be discussed.

26.12. Table 5 lists the features relied upon by SCRO and the corresponding numbers used for the same or approximately the same features by Mr Mackenzie in his chartings,[12] Mr Swann in his chart P, and in the Phase 1 chartings by other witnesses.

26.13. For SCRO, Mr Mackenzie and Mr Swann these are points of identity and for Mr Wertheim, Mr Zeelenberg and Mr Grigg they are points of difference. The extent of the deep-seated differences of opinion in relation to the identification of QI2 can be seen from the fact that Mr Zeelenberg accepted only three or possibly four of the SCRO points (points 1, 2, 12 and, possibly, 14) as being similar even by type and location.[13]

6 Mr Mackenzie 10 November pages 113-114 and CO_2005h
7 Mr Mackenzie 10 November page 113ff and the series of images TC_0211.01-TC_0211.10
8 Mr Mackenzie 10 November pages 122-124, 130-131
9 Mr Mackenzie 10 November pages 116-117, 149-152
10 TS_0004
11 Mr Swann 21 October pages 114-119
12 Para 6 above
13 FI_0133 Mr Zeelenberg Phase 2 Comparative Exercise and AZ_0061 slide 168

SCRO number	SCRO description	Mackenzie number & description[14]	Swann number & description	Zeelenberg (FI_0103)	Wertheim (FI_0124)	Grigg (FI_0100)
1	bifurcation	12 - bifurcation		1	1	
2	bifurcation		6 - ridge ending	2	2	6
3	bifurcation	18 - bifurcation*	8 - bifurcation		3	7
4	ridge ending	19 - ridge ending				
5	bifurcation	20 - bifurcation			4	
6	ridge ending	21 - ridge ending			4	8
7	ridge ending	30 - ridge ending				
8	ridge ending	22 - ridge ending				
9	ridge ending	23 - ridge ending	9 - probably bifurcation			
10	ridge ending	16 - ridge ending	7 - (not discussed)			
11	ridge ending	27 - bifurcation*				
12	bifurcation	29 - bifurcation		4		1
13	ridge ending			6		3
14	ridge ending	3 - ridge ending	15 - ridge ending	9	5	
15	bifurcation	4 - bifurcation*	16 - bifurcation			
16	ridge ending			1	1	

Table 5: QI2 Ross - approximately corresponding features in the chartings

26.14. More generally the scene can be set by considering the reply by Mr Grigg to the question whether the detail in QI2 was of sufficient quality for identification purposes:

> "In order to answer that question, I think I would have to see the fingerprint of the individual who actually left the mark. As it stands, it is a very fragmented mark. It is very difficult to align the different areas where characteristics can be discerned to build up a picture of the whole mark and how the different areas fit together. There are characteristics visible in different places but whether they could be accurately linked to each other by following the ridges through, counting through in order to get sufficient in total over the whole area to make a decision, I am not sure."[15]

14 The asterisk indicates a difference of opinion on some aspect of the feature.
15 Mr Grigg 29 September pages 100-101

26.15. Both the mark and the print presented challenges.

- The ridge detail visible in the mark was affected by distortion, by swipes or smears, the superimposition of ridge detail from other marks and the 'background noise' of the picture on the tin.

- As for the post-mortem print of Miss Ross's right forefinger, the ridge detail appeared broken.

26.16. There was little, if any, common ground among the witnesses, with divergences in opinion not simply as between the two rival conclusions for or against identification but also on matters of detail as between witnesses who had arrived at the same conclusion.

26.17. Mr Mackenzie and Mr Swann supported the identification of QI2 Ross as the right forefinger of Miss Ross but their reasoning did not entirely coincide with that of SCRO. Mr Mackenzie testified to a total of 31 points in sequence and agreement. Only 13 of his points were common to his charting and that of SCRO and there were differences of view in relation to aspects of three of those 13 points (i.e. points 3, 11 and 15) and also in relation to the remaining three SCRO points: numbers 2, 13, and 16. As for Mr Swann, his Phase 2 response[16] records his agreement with the 16 SCRO points but that was subject to a difference of view as to the proper characterisation of two of the points (SCRO 2 and 9) and a reservation about points 11-13.

26.18. There was also a lack of consistency among Mr Wertheim, Mr Zeelenberg and Mr Grigg in relation to the points of difference between mark and print that they argued justified the exclusion of Miss Ross as the maker of the mark. For example, Mr Wertheim was of the view that only the part of the mark within the oval in FI_2309.21 (immediately around and above the core) was of suitable quality for comparison.[17] Consequently he avoided the area at the bottom (corresponding to SCRO points 7 to 9 and 11 to 13) when charting his own points of difference.[18] By contrast, Mr Zeelenberg and Mr Grigg relied on points of difference in the lower left quadrant in the vicinity of SCRO 13.

Structure of the discussion

26.19. Given the lack of common ground it is necessary to discuss each of the SCRO points. There will also be discussion, on an illustrative basis, of some of the points of difference relied upon by Mr Wertheim, Mr Zeelenberg and Mr Grigg and some additional matching points that Mr Swann relied upon in the part of the mark above the core.

26.20. Mr Mackenzie's third level detail tracings will be discussed separately.

16 FI_0144 page 8 Mr Swann Phase 2 Comparative Exercise
17 Mr Wertheim 23 September page 131
18 Mr Wertheim 23 September pages 124-132

The SCRO points

SCRO points 11 and 12

26.21. The evidence about these two points, to the bottom left below the core, was particularly striking because they represent the start of the analyses of Mr MacPherson[19] and Mr Mackenzie.[20] Both described these points as strong features and yet their analyses conflicted.

26.22. SCRO marked the upper feature, SCRO point 12, as a bifurcation and the lower feature, SCRO point 11, as a ridge ending. That was confirmed by Mr MacPherson in evidence. His interpretation was that the ridges descending from the bifurcation SCRO 12 were open at the lower end and, on that interpretation, the combined feature SCRO 11 and 12 resembled what Counsel to the Inquiry referred to as an open-ended bell shape.[21]

26.23. Mr Mackenzie agreed that the upper feature (his point 29) was a bifurcation but he presented the lower feature (his point 27) also as a bifurcation. This means that Mr Mackenzie's interpretation was that there was a lake in print and mark.[22] The presence of a lake was central to Mr Mackenzie's analysis because it was the core feature in the third level detail tracings in CO_2004h.[23] However, Mr MacPherson disputed the presence of a lake. The appearance of closure at SCRO 11 in the print was attributed by him to the presence of an incipient that was absent in the mark, and he explained that incipients are not always reproduced.[24]

26.24. Both Mr MacPherson and Mr Mackenzie sought to explain their conflicting analyses by saying that it was only a difference of interpretation.[25] Examiners describing the same 'event' can differ in their interpretation of it.[26]

26.25. The dispute concerning Mr MacPherson's analysis may be a matter of interpretation: is the ridge detail in the print that appears to form the point of contact at SCRO 11 no more than an incipient that may not have been reproduced in the mark?

26.26. By contrast, the issue concerning Mr Mackenzie's evidence is more fundamental because it invites the conclusion that a point of contact can be observed in the mark when the weight of evidence from other witnesses on both sides of the argument is that it is not observable because of disturbance in this area.

26.27. Mr MacPherson's drawing[27] was similar to Mr Zeelenberg's slide 162,[28] which had the ridges diverging as they descended from the bifurcation SCRO 12 and then being intersected by an area of disturbance represented by a vertical swipe. Mr Zeelenberg's evidence was that the bifurcation at SCRO 12 was similar by location

19 Mr MacPherson 29 October pages 54-57
20 Mr Mackenzie 2 October pages 4, 7 and Mr Mackenzie 10 November pages 149-150
21 Mr Mackenzie 11 November page 24
22 Mr Mackenzie 2 October pages 8-9
23 Mr Mackenzie 2 October pages 8-19, FI_0210.01, FI_0210.02, FI_0210.03, FI_0210.04 and Mr Mackenzie 10 November pages 125-127, 129-130
24 Mr MacPherson 29 October pages 97-102
25 Mr MacPherson 29 October pages 97-102 and Mr Mackenzie 11 November pages 27, 121-123
26 Mr Mackenzie 29 October page 122
27 FI_2910.13
28 AZ_0061 slide 162

and direction[29] but he contested SCRO 11, arguing that this point was at the intersection with the area of disturbance and the ridge flow ceased to be visible and hence was unreliable.[30] Mr MacPherson accepted that this disturbance did occur but it was his evidence that it was to the right of SCRO 11,[31] hence SCRO 11 could be interpreted as a genuine ridge ending.

26.28. As already noted, Mr Wertheim's evidence was that there was only a limited part of the mark that was reliable, that part being within the oval in FI_2309.21. SCRO 11 was outside that area and Mr Wertheim agreed with Mr MacPherson and Mr Zeelenberg that there were vertical lines of disturbance in the vicinity of SCRO 11. Mr Wertheim's evidence was that the shape in the mark was out of proportion relative to the shape in the print and he was unable to see evidence of the joining of ridges at SCRO 11 in the mark to correspond to the print. With the disturbed deposition he could not be sure whether it did or did not join. Overall his conclusion was that there were too many different lines flowing in different ways for him to be comfortable with any interpretation in that area.[32]

26.29. Mr Swann did not positively dispute SCRO points 11-13 and in evidence[33] he said that he could see the characteristics relied on by SCRO. However, both in his Phase 2 response[34] and in his oral evidence[35] he said that the area of SCRO 11-13 was one that he considered to be affected by "movement, distortion and background noise".[36] This area, he said, did not look exactly smooth and clear and therefore in preparing his own charting he preferred to steer clear of it.[37]

SCRO points 1, 10 and 16 and the 'chilli pepper'

26.30. SCRO points 1, 10 and 16 and the shape that came to be called the 'chilli pepper' are at the core. Mr Wertheim and Mr Zeelenberg both considered this to be an area of difference between mark and print.

26.31. Subject to the evidence of Mr Mackenzie, the ridge pattern in the print (figure 15) appears relatively clear. It is defined by a single, arching, curved ridge which, from the top of the arch, has a short ridge downwards centrally, shaped like a chilli pepper. The bottom of the 'chilli pepper' comes approximately half way down the curved outer ridge. As the outer ridge curves to the right it appears to bifurcate half way down its length, SCRO point 1. The right leg of the bifurcation ends abruptly and forms a short spur, SCRO point 16, while the left leg descends to a ridge ending at SCRO point 10. For brevity this can be called the 'spur' shape.

26.32. The question was whether that pattern was reproduced in the mark (figure 14). Mr MacPherson said that it was.[38]

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29 FI_0133 Mr Zeelenberg Phase 2 Comparative Exercise
30 Mr Zeelenberg 7 October pages 104-105 and AZ_0061 slide 162
31 Mr MacPherson 29 October pages 102-104
32 Mr Wertheim 23 September pages 129-131, Mr Wertheim 24 September pages 12-13 and FI_2409.03 (orange circle)
33 Mr Swann 22 October page 5
34 FI_0144 page 8 Mr Swann Phase 2 Comparative Exercise
35 Mr Swann 22 October pages 1-5
36 FI_0144 page 8 Mr Swann Phase 2 Comparative Exercise
37 Mr Swann 22 October page 5
38 Mr MacPherson 29 October page 61ff

26.33. Mr Wertheim preferred the view that in the mark SCRO points 16 and 10 were simply points on a single continuous ridge to the right of the core. His reasons for disputing SCRO's position were: the clarity of QI2 did not justify the interpretation of a spur at SCRO 16; SCRO's interpretation of the mark involved arguing that the length of ridge circled in yellow in FI_2309.15 - see figure 16 - did not exist; and the 'chilli pepper' was larger in the mark than in the print, with the bottom of this feature in the mark going as far as the end of the curving ridge.[39]

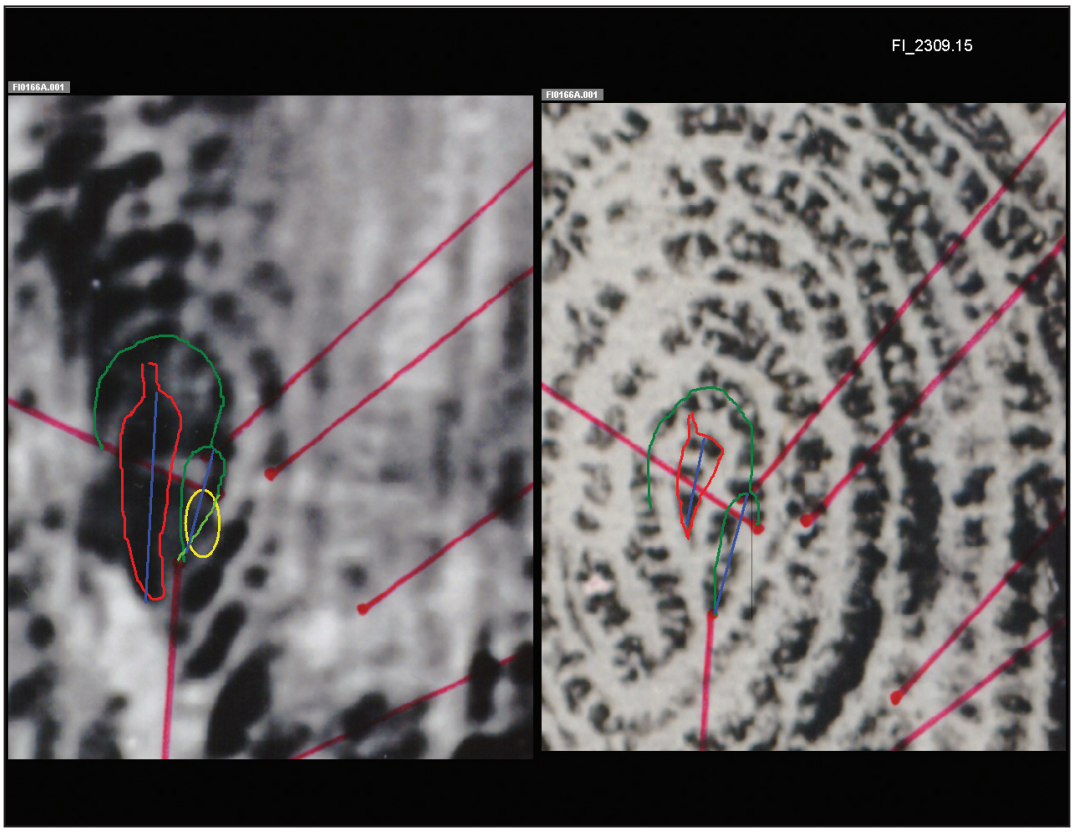

Figure 16

26.34. Mr Wertheim's presentation of the core corresponded with that of Mr Zeelenberg as can be seen from Mr Wertheim's drawing FI_2309.15 and Mr Zeelenberg's slide 167.[40]

1. In the centre of the core of the mark the 'chilli pepper' was elongated whereas in the print there was a small comma or triangle.

2. Mr Zeelenberg agreed that SCRO points 1, 10 and 16 formed a spur shape in the print, with a gap between SCRO points 10 and 16.[41] By contrast, the feature in the mark was described as an 'eyelet': a shape corresponding to the green oval that Mr Wertheim drew. The ridges to right and left were continuous with no gap between SCRO points 16 and 10, and a single ridge ending (SCRO 10) emerged from the base of the eyelet.

26.35. Mr MacPherson's evidence has to be approached in two parts.

39 Mr Wertheim 23 September page 102ff
40 AZ_0061 slide 167
41 Mr Zeelenberg 7 October pages 94, 107ff

1. Asked about the 'chilli pepper', he explained that at the time of preparing the initial charting he had not gone into the area to the left of SCRO points 1, 10 and 16, including the 'chilli pepper', because he considered that there was a v-shaped area of disturbance entering the core of the mark as shown (in red) in FI_2910.16. This had caused the 'chilli pepper' (said to be a ridge ending down) to be lost in the mark.[42] He argued that what Mr Wertheim saw as the bottom of the 'chilli pepper' was in fact the bottom of the left side of the curving ridge in Miss Ross's print; and that was so despite the appearance of a gap in the ridge structure in the image of the mark to the left of the core.[43]

2. Mr MacPherson did not support the 'eyelet'. His interpretation was that there were matching spur shapes in mark and print. He accepted that there was a bifurcation at SCRO point 1 with the left leg running down to the ridge ending at SCRO 10 but, as Mr Wertheim had anticipated, his interpretation of the mark involved arguing that the section of the right leg between SCRO points 16 and 10 circled in yellow in FI_2309.15 did not exist. Mr MacPherson argued that there was a gap on the right side between SCRO points 16 and 10, as shown in his drawing FI_2910.16, and that the apparent length of ridge circled in yellow by Mr Wertheim could be ignored as not being truly a ridge characteristic.[44]

26.36. There was, accordingly, an inconsistency in Mr MacPherson's evidence.

1. On the right side of the core of the mark (points 1/10/16) his interpretation depended on assuming a gap where the image appeared to show a continuous ridge.

2. On the left side of the core of the mark his interpretation assumed continuous ridge detail where there appeared to be a gap in the image (i.e. immediately beneath the end of Mr Wertheim's green line on the left in FI_2309.15).

Mr MacPherson justified that inconsistency as a product of the lack of clarity of the image.[45]

26.37. Mr Mackenzie's evidence regarding the 'chilli pepper' was not consistent with that of Mr MacPherson. The point that Mr Mackenzie numbered 11 in his own charting corresponded to the top of the 'chilli pepper' but his observation and interpretation of that feature was quite different. He described it as a ridge ending upwards (not down). His evidence was that it had not been lost in the mark: he said that a short section of it (that he drew in TC_0211.05) was visible in the mark, the shortness of this section being due to slight crushing to the left of the core.[46]

26.38. As for SCRO 1, 10 and 16, Mr Mackenzie said in his Phase 2 response to SCRO 16: "Eyelet feature on mark incomplete on control print."[47] This was reflected in his chartings and in his oral evidence.

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42 Mr MacPherson 29 October pages 66-67
43 Mr MacPherson 29 October pages 66-72
44 Mr MacPherson 29 October pages 64-72
45 Mr MacPherson 29 October pages 64-72
46 Mr Mackenzie 11 November pages 51-54
47 FI_0139 pdf page 6 Mr Mackenzie Phase 2 Comparative Exercise

26.39. His chartings of the mark included the bifurcation SCRO 1 (his point 12) but he did not have anything corresponding to the spur SCRO 16 because he agreed with Mr Zeelenberg's description of an eyelet or small lake with a continuous ridge detail to right and left descending uninterrupted to SCRO 10 (his point 16).[48]

26.40. He did not draw the ridge structure in his charting of the print[49] and therefore a direct comparison cannot be made between his chartings of mark and print but his comment that the eyelet feature was "incomplete" in the print is consistent with the conclusion that a section of ridge detail is absent from the print.

26.41. Mr Mackenzie's evidence is consistent with there being a difference between mark and print in relation to the detail at the core. The explanation that he gave for that difference is to be seen in his Phase 2 response to Mr Zeelenberg's point 1 (the same bifurcation as SCRO 1). Mr Mackenzie wrote: "On print 'eyelet' formation incomplete due to break in powder on digit."[50]

26.42. In summary, Mr MacPherson and Mr Mackenzie gave conflicting interpretations of SCRO points 1/10/16.

1. Mr MacPherson's interpretation was a matching 'spur' shape in mark and print, an interpretation that required a length of apparent ridge detail in the mark (the section within Mr Wertheim's yellow circle) to be ignored.

2. Mr Mackenzie's interpretation was a matching 'eyelet' in both, an interpretation that required a gap in the print (i.e. between SCRO points 10 and 16) to be explained.

26.43. In the context of SCRO points 11 and 12 Mr MacPherson cited the development of the mark with superglue as a factor which may have affected the appearance of the mark.[51] For SCRO points 1, 10 and 16 Mr Mackenzie assumed that some deficiency in the powdering of the finger could have affected the print.[52] Development techniques can affect mark and print but that would not provide a means of reconciling their conflicting views on SCRO 1,10 and 16 because Mr MacPherson sought to reinterpret the natural appearance of the mark, while Mr Mackenzie sought to reinterpret the print, the former to support the finding of matching spurs, the latter to support matching eyelets. The significance of that conflict can best be seen in the fact that Mr Wertheim and Mr Zeelenberg agreed Mr Mackenzie's interpretation of the mark (an eyelet) and Mr MacPherson's interpretation of the print (a spur) and hence declared a difference between mark and print.

48 Mr Mackenzie 10 November page 154 and TC_0211.05
49 e.g. TC_0211.09
50 FI_0139 page 2 Mr Mackenzie Phase 2 Comparative Exercise
51 Mr MacPherson 29 October pages 100-101
52 FI_0139 page 2 Mr Mackenzie Phase 2 Comparative Exercise

SCRO points 2, 3 and 15

26.44. The fact that there was a spread of opinion among the witnesses, even those arriving at the same conclusion, can also be illustrated by reference to SCRO points 2, 3 and 15.

26.45. The debate concerning SCRO point 2 also had elements of both observation and interpretation. Superficially the difference was whether the feature immediately to the right of the core, observable in both mark and print, was properly to be characterised as a bifurcation or a ridge ending but on closer examination Mr Mackenzie's conclusion that the feature was a ridge ending in fact turned on a difference in observation as to the precise location of the relevant characteristic:

1. There was a measure of agreement between SCRO and the contradictors (Mr Grigg, Mr Wertheim and Mr Zeelenberg) that there was an observable feature properly characterised as a bifurcation in both mark and print. The contradictors nonetheless disputed that the bifurcations matched, by drawing attention to a difference in appearance. In the mark the two ridges that are said to connect to form the bifurcation appear symmetrical and of equal thickness, whereas in the print the left leg is thinner than the right leg.[53] Mr Mackenzie, Mr MacPherson and Mr Swann offered possible explanations for this observable difference,[54] leading to a debate among the witnesses as to whether the variation in appearance between mark and print could have been attributable to either (a) the manner in which the post-mortem prints were taken from Miss Ross or (b) the possibility that the use of superglue to develop the mark could have led to thickening of the ridges in some places. The evidence is summarised in chapter 19.[55]

2. Mr Swann's analysis, by contrast, was that the feature was a ridge ending and not a bifurcation, though he considered that the judgment was borderline.[56]

3. Mr Mackenzie agreed with Mr Swann that the ridges did not connect and hence there was no bifurcation at the position claimed by SCRO (or, for that matter, the contradictors). However, where Mr Swann saw the left ridge as ending at that point, Mr Mackenzie saw it carrying on in a parallel line inside the right ridge and ending higher up at the point which he had numbered 13.[57] Mr Swann's evidence was that he could see something there but he was not sure what it was; it could have been an incipient ridge or dirt on the tin.[58] Mr MacPherson saw an incipient in the print above the bifurcation which did not show in the mark.[59]

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53 Mr Grigg's point 6; Mr Grigg 29 September pages 104-107, Mr Wertheim 23 September pages 109-110, Mr Zeelenberg 7 October page 94 and AZ_0061 slide 145

54 See chapter 19 para 16ff; Mr Mackenzie 10 November pages 132-134, 156-162, Mr MacPherson 29 October pages 73-75, Mr MacPherson 3 November pages 122-127 and Mr Swann 21 October pages 124-127

55 See chapter 19 para 16ff

56 Mr Swann 21 October pages 123-126

57 Mr Mackenzie 2 October pages 48-53 and FI_0210.11 on which the point is numbered 3 instead of 13 (see pages 52-53)

58 Mr Swann 21 October pages 126-128

59 Mr MacPherson 29 October pages 75-77 and FI_2910.18

26.46. SCRO 3 and 15, although in different locations, raised similar issues, more directly related to observability.

26.47. The witnesses who supported identification were agreed that SCRO 3 was a bifurcation to the right of the core and all three (Mr Mackenzie, Mr MacPherson and Mr Swann) indicated the same ridge feature on the print but located the corresponding feature in the mark in three different places. These three witnesses were primarily addressing different images of QI2. Though probably all derived from the same negative, there were differences in contrast among the three images. That said, the variations in image quality do not explain the differences among these witnesses because the differing locations can be plotted by reference to a common feature, a small oval shaped blank or white area in the mark:

1. Image FI_0210.12 shows the contrast between Mr Mackenzie's charting (the left image) and the SCRO charting (the right image). SCRO 3 should correspond to the characteristic that Mr Mackenzie numbered 18 in his charting CO_2005h. In image FI_0210.12 the white oval area is circled in red in both Mr Mackenzie's charting and the SCRO charting. Mr Mackenzie's point 18 is indicated by the line in the left image that ends in the red circle, and is located *below* the white oval. In the right-hand image SCRO 3 is marked half way up and to the right of the red circle and is towards the *top* of the white oval.

2. The difference can also be seen by comparing Mr MacPherson's drawing of ridges in FI_2910.19 (the point of bifurcation is above the white oval) with Mr Mackenzie's drawing of ridges FI_0210.13 (where it is below the oval). The difference would remain even if an adjustment were to be made to Mr Mackenzie's drawing to show the bifurcation at the position of his dot for his point 18. Mr Mackenzie considered that SCRO had marked the point in the wrong place.[60]

3. Mr Swann positioned his point 8, in FI_2110.13, at a level towards the top of the oval but further to the right than either Mr Mackenzie or Mr MacPherson.

4. Both Mr Swann and Mr MacPherson were confident of the point and considered that it was just below an area of a swipe or smear.[61] By contrast, Mr Wertheim and Mr Zeelenberg challenged SCRO point 3 on the basis that this area of the mark was of such poor quality due to disturbance by a swipe or smear that no ridge characteristic was reliably observable.[62] The variations in the positioning of SCRO 3 by Mr MacPherson, Mr Mackenzie and Mr Swann could be consistent with that proposition.

60 Mr Mackenzie 11 November page 32
61 Mr Swann 21 October page 129 and Mr MacPherson 29 October page 78
62 Mr Wertheim 23 September pages 111-120, Mr Zeelenberg 7 October page 100 and AZ_0061 slide 157

26.48. The same applies to SCRO 15, a bifurcation in the print some distance from, and to the upper left of, the core. Mr Wertheim and Mr Zeelenberg said that this point was questionable or unreliable because it was in an area distorted by a swipe.[63] Mr MacPherson accepted that there was "background interference" but he considered that it did not come as low as the bifurcation[64] whereas Mr Mackenzie's evidence was that SCRO's positioning of the characteristic in the mark was wrong: it should have been marked a little higher up.[65] The contrast between Mr Mackenzie and Mr MacPherson as to the precise location of the point puts the reliability of the observation in doubt.

SCRO points 4 - 9

26.49. With SCRO 4 the question was whether a ridge ending is observable. Mr MacPherson and Mr Mackenzie concurred, the latter saying that the point was very clear to him.[66] Mr Zeelenberg could not find the point, saying that the area was distorted.[67] Of the contradictors, Mr Wertheim came closest to the SCRO position by accepting that there might be something within the red circle shown in the mark in FI_2309.18, though he considered it to be unreliable due to evidence of a smear.[68]

26.50. SCRO 5, 6 and 9 are in close proximity. Looking to the print, SCRO points 5 and 6 could be taken as a bifurcation (SCRO 5), the right leg of which ends as a spur (SCRO 6). SCRO 9 is a ridge ending on the opposite side of the bifurcation. The question is whether such fine detail can be observed in the mark, particularly given that the bifurcation as marked by SCRO is immediately adjacent to a large black spot which makes it difficult to see the ridge detail rising from the point assumed to be the bifurcation. Mr Mackenzie and Mr MacPherson said that these details could be observed.[69] Mr Wertheim was strongest in his disagreement.[70] Mr Grigg labelled SCRO 6 as his point 8 in the print[71] the same feature (which he described as a cross-over) as SCRO referred to as the spur. On the mark he placed the corresponding feature substantially to the left and below the position indicated by SCRO.

26.51. Mr Mackenzie[72] and Mr MacPherson said SCRO points 7 and 8 are two ridge endings that could be picked out in the mark in an area otherwise dominated by the hatched appearance of crossing vertical and horizontal lines. Mr MacPherson explained that care was required as these points were close to, but outside, an area of superimposition, highlighted in FI_2910.25.[73] Mr Wertheim described the section of the mark from points 7 to 13 as a "hodgepodge", lacking clarity due to the presence of "double taps, smears, other fingerprints".[74] Mr Zeelenberg agreed that the points highlighted in the print were upcoming ridge endings but said that

63 Mr Wertheim 23 September page 132 and Mr Zeelenberg 7 October pages 106-107
64 Mr MacPherson 3 November pages 15-20
65 Mr Mackenzie 10 November page 130 and Mr Mackenzie 11 November pages 23-24, 50
66 Mr Mackenzie 11 November page 37
67 Mr Zeelenberg 7 October pages 100-101
68 Mr Wertheim 23 September page 122
69 Mr Mackenzie 10 November pages 162-167 and Mr MacPherson 29 October pages 91-93
70 Mr Wertheim 23 September page 123
71 FI_0169A Mr Grigg Phase 1 Comparative Exercise QI2 Enlargement
72 Mr Mackenzie 11 November pages 39-40
73 Mr MacPherson 29 October page 96
74 Mr Wertheim 23 September pages 125-126

in the corresponding area of the mark the dominant flow was horizontal and the vertical ridges for points 7 and 8 could not be detected;[75] and he added a more general comment:

> "Do not believe a fingerprint expert that he can see what you cannot see. If he cannot demonstrate it, it is not there. You may struggle to interpret the things, to validate things and to compare them but if you cannot see them, they are not there. A general requirement is demonstrability. You should be able to demonstrate what you say you see. If you cannot see it, it is not there."[76]

SCRO points 13 and 14, Grigg points 2 and 3 and Zeelenberg points 5 and 6

26.52. Both Mr Mackenzie and Mr Swann marked the same ridge ending as SCRO 14.[77] Mr Wertheim was doubtful about the point because of smearing and superimposition[78] but accepted that it might match if considered in isolation, his doubt being whether it was in sequence with SCRO 15.[79] Mr Zeelenberg also accepted SCRO 14 (his point 9), if taken on its own. Mr Zeelenberg's difficulty related to the surrounding detail and, to some extent, a perceived difference in ridge count from SCRO 13.[80] This assumes that it is possible to accept ridge continuity in this section of the mark, which can be discussed in the context of SCRO 13.

26.53. SCRO 13 is at the bottom left of the mark (shown as point A in figure 17) and some of the points of difference relied upon by Mr Grigg and Mr Zeelenberg are in that area also. Some witnesses said that part of the mark was affected by disturbance and, if that is so, it raises the question whether a reliable comparison can be made between that portion of the mark and print to establish either (a) a point of similarity (such as SCRO 13) or (b) an unexplained difference (such as Mr Grigg's points 2 and 3 and Mr Zeelenberg's points 5 and 6).

26.54. The bottom left of the mark is part of the area that Mr Wertheim described as a "hodgepodge", lacking clarity due to a combination of sources of distortion. Mr Swann, while not disputing the SCRO evidence, said that he found this area difficult to work with due to movement, distortion and background noise;[81] and in preparing his own charting he steered clear of it.[82]

75 Mr Zeelenberg 7 October page 104 and AZ_0061 slide 161
76 Mr Zeelenberg 7 October page 104
77 Mr Mackenzie's point 3; Mr Mackenzie 2 October pages 42-48, FI_0210.07, Mr Mackenzie 10 November pages 115-117, TC_0211.03 and TC_0211.07, Mr Swann 21 October pages 131-132 and TS_0004 slide 15
78 Mr Wertheim 24 September page 1ff
79 Mr Wertheim 24 September page 24
80 Mr Zeelenberg 7 October pages 97, 106
81 FI_0144 page 8 Mr Swann Phase 2 Comparative Exercise
82 Mr Swann 22 October pages 1-5

26.55. SCRO 13 (A in figure 17) is immediately to the right of a strong black feature that Counsel to the Inquiry called a "hook", (shown in the 'box' in figure 17), which none of the witnesses considered to be a genuine ridge characteristic. There was unanimity that the "hook" was an artefact of some distortion.[83]

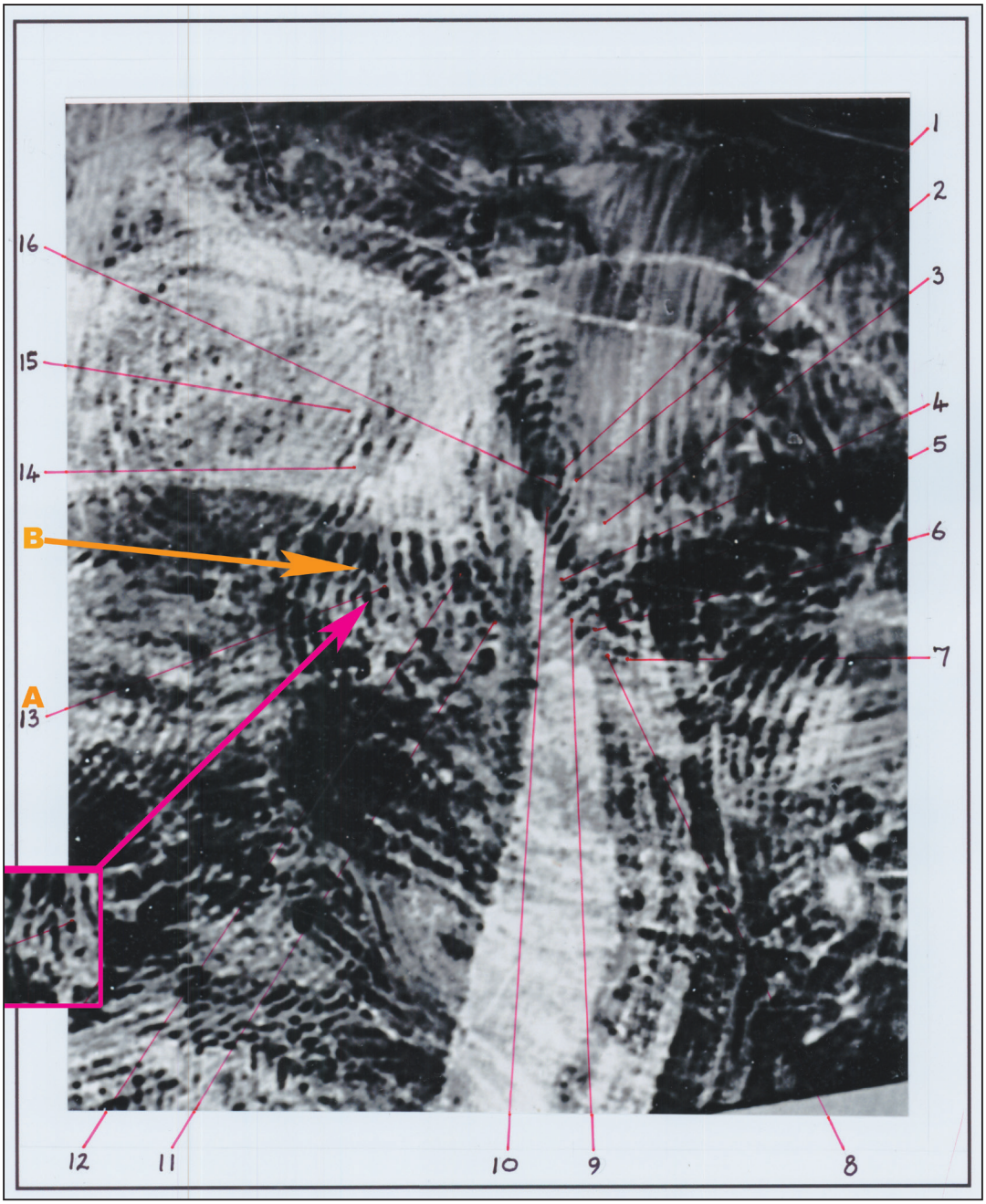

Figure 17

26.56. The difficulties associated with working with this part of the mark can be seen from a consideration of the evidence of Mr Grigg and Mr Zeelenberg.

26.57. The working assumption was that Mr Grigg's point 3 was the same as SCRO 13 but on close comparison of the two chartings (SCRO FI_0166A; and Mr Grigg FI_0169A) there are differences:

83 e.g. Mr Wertheim 23 September page 128

- In the print SCRO are referring to point C in figure 18, a ridge ending immediately beneath a feature that looks like an exclamation mark. Mr Grigg, by contrast, is referring to a bifurcation at the top of the exclamation mark.

- In the mark Mr Grigg's point 3 is located on a ridge to the right of SCRO 13 (A in figure 17).

Figure 18

These differences in relative position are bound to affect a comparison between the points.

26.58. The significance of Mr Grigg's point 3 is brought out in his drawing FI_2909.24, in which he contrasted the position of that point relative to a line between his points 1 and 2.[84] In the print Mr Grigg's point 3 is beneath the line but in the mark it is above

84 In the mark Mr Grigg's point 2 is the same as Mr Zeelenberg's point 5 in FI_0171A.

the line. Mr Grigg's conclusion that his point 3 was an unexplained difference assumes ridge continuity between points 1 and 2; but point 1 is to the right of the hook and point 2 is to the left of it.

26.59. Similar issues arise in the evidence of Mr Zeelenberg:

1. Again there was a working assumption that one of his points (number 6 in FI_0171A) coincided with SCRO 13 and, at least in the print, that is superficially so. On close examination the two points can be observed to be different, the difference being greater in the mark than in the print.

2. In the print Mr Zeelenberg's point 6 (D in figure 18) is on the ridge to the *left* of the dot in the exclamation mark, whereas SCRO 13 (C in figure 18) appears to be on the ridge to the *right* of his point 6, immediately beneath the dot.

3. In the mark, Mr Zeelenberg showed his point 6 (B in figure 17) to the left of where SCRO had marked their point 13 (A in figure 17).

4. Mr Zeelenberg's interpretation of the mark in his slide 149 in AZ_0061 was that there were two ridges running through the hook and his point 6 (B in figure 17) was located on one of those ridges, above the top of the hook. SCRO 13 in the mark (A in figure 17) is on neither of these ridges but rather midway down and to the right of the hook.[85]

5. Mr Zeelenberg advanced his point 6 as an unexplained difference. In his slide 149 in AZ_0061, he pointed to a difference in ridge count relative to his point 4 (the same bifurcation as SCRO 12). In the print he pointed to three intervening ridges between his points 4 and 6, compared with four intervening ridges in the mark. The points are not in sequence.

6. That proposition is dependent upon the location of Mr Zeelenberg's point 6 in the mark on a ridge forming part of the hook. As noted, SCRO point 13 is located on a different ridge, to the right of Mr Zeelenberg's point 6. If the comparable characteristic in the mark were to be SCRO point 13 (and not Mr Zeelenberg's point 6 (i.e. A in figure 17 and not B)), the ridge counts would be reconciled.

7. The close proximity to an area of distortion evidenced by the 'hook' has the result that one cannot be confident whether the comparable feature in the mark is SCRO point 13 (A) or Mr Zeelenberg's point 6 (B).

26.60. Mr Mackenzie's evidence most clearly focusses the question whether the comparison between this portion of mark and print can establish reliable points of either (a) similarity or (b) unexplained difference. In responding to Mr Zeelenberg's associated evidence of a difference in ridge count between SCRO points 13 and 14, Mr Mackenzie said that below SCRO 14 there was the superimposition of the Asbury print (QI2 Asbury), rendering a ridge count from SCRO 13 to 14 unreliable.[86] In his Phase 2 response[87] he commented that Mr Grigg's point 2

85 See figure 14
86 Mr Mackenzie 11 November pages 46-47
87 FI_0139 pages 2-3 Mr Mackenzie Phase 2 Comparative Exercise

and Mr Zeelenberg's point 5 (to the left of the hook) were marked in an area of superimposition and he was consistent in describing SCRO 13 (A in figure 17) as being on the edge of that area.[88] Though he agreed with SCRO 13 in the comparative exercise, it was not one of the points identified in his own chartings for that reason. As noted, the same applied to Mr Swann and Mr Wertheim.

Top of mark

Mr MacPherson's evidence

26.61. SCRO did not rely on any detail above the core, though Mr MacPherson was to advance additional points in sequence and agreement during the hearing: two bifurcations in the upper left shown in FI_0311.02.[89] Mr MacPherson's evidence-in-chief inferred that there was ridge continuity in the area in which these features sat. In cross-examination by Mr Smith Q.C. Mr MacPherson had to accept that these ridge details were not, in fact, in the same alignment in mark and print and this he variously attributed to movement, damage or superimposition.[90] The area affected by disturbance is shown outlined in red in the image FI_0311.05[91] and lies between the two bifurcations. Mr MacPherson's evidence invites the conclusion that two characteristics that are not in fact in the same alignment in mark and print can, nonetheless, be held to be in sequence and agreement if allowance is made for disturbance due to some cause the precise nature of which is unknown.

Mr Swann's points 1, 4 and 10

26.62. More generally, the area above the core was a matter of debate between (a) Mr Swann and Mr Mackenzie, on the one hand, who reported points in sequence and agreement in this area and (b) Mr Wertheim, Mr Grigg and Mr Zeelenberg, on the other, who saw points of difference.

26.63. Mr Swann's chart P in his presentation TS_0004 indicates 16 points in sequence and agreement of which ten are in addition to the points relied upon by SCRO. Mr Swann's evidence was that the points that he numbered 1 - 4 and 10 in chart P, located above the core, formed "a very unique cluster of characteristics".[92] The debate among the experts came to focus separately on (a) point 1 and (b) points 4 and 10, and was highly informative because the same features were being relied upon by the opposing witnesses as being equally proof of a match and proof of an exclusion. In the case of Y7 the debate centred on the mark but in the case of QI2 Ross there was as much debate about the print as there was about the mark.

26.64. The debate concerning Mr Swann's point 1 is simpler than that concerning 4 and 10.

1. Mr Swann's evidence was that his point 1 is a matching ridge ending.

2. Mr Zeelenberg picked out the same point (he numbered it 10). He started from the premise that the points were similar by type and location in both mark and print, but his opinion was that the other adjacent ridge detail was at variance and therefore there was a "distinct discrepancy".[93] The adjacent

88 FI_0139 page 6 Mr Mackenzie Phase 2 Comparative Exercise
89 Mr MacPherson 3 November pages 20-21
90 Mr MacPherson 3 November pages 127-131
91 Mr MacPherson 3 November page 147
92 Mr Swann 22 October pages 5-6
93 Mr Zeelenberg 7 October page 98 and AZ_0061 slide 152

ridge detail to which he referred is that associated with Mr Swann's points 4 and 10.

3. This is within the V-shaped area of disturbance that Mr MacPherson indicated in his drawing FI_2910.16 and consequently his evidence was that the ridge structure was not reliable.[94]

26.65. The debate concerning Mr Swann's points 4 and 10 requires close attention to very fine detail particularly in the print. The issues include the question whether gaps in the detail in mark and print are to be interpreted as (a) genuine breaks in the ridge detail in the fingerprint or (b) incomplete reproductions in the impressions. There is also a more subtle question about which ridge feature in the print most closely approximates to the corresponding feature in the mark.

26.66. Mr Swann characterised point 4 as a ridge ending and point 10 as an island and his evidence was that there was clearly a break in the ridge structure between these two points.[95] Responding to the counter-argument that there was a continuous ridge, he argued that a fingerprint examiner has to accept what can be seen and if there is a gap observable then there is a gap.[96]

26.67. In summarising the evidence of Mr Grigg, Mr Zeelenberg and Mr Wertheim, it is necessary to maintain a distinction between mark and print because their evidence sought to establish a difference between the two.

26.68. To start with the mark:

1. Mr Grigg, Mr Wertheim and Mr Zeelenberg agreed that there was a ridge ending at the point that Mr Swann numbered 10. There was a debate concerning Mr Swann's point 4.

2. The relevant point in Mr Grigg's charting[97] is his point 5. By location it coincides with Mr Swann's point 10 and Mr Grigg had no direct equivalent to Mr Swann's point 4. Mr Grigg characterised his point 5 as a ridge ending or, more fully, as a slightly broken ridge with the appearance of maybe a little independent hanging off the end.[98] The description of his point 5 in the mark as a "little independent hanging off the end" might coincide with Mr Swann's analysis of the same point (i.e. Swann 10) as an island separated from Mr Swann's point 4.

3. Mr Wertheim, like Mr Grigg, gave a description of a ridge ending in the mark that could be consistent with Mr Swann's observation, Mr Wertheim describing the ridge as tapering to a hair line with a little bulb on the end.[99] Having studied a variety of images, including Mr Swann's chart, he conceded that the structure of the ridge in the mark was ambiguous.[100]

94 Mr MacPherson 3 November pages 25-27
95 Mr Swann 22 October pages 5-6
96 Mr Swann 22 October pages 21-22
97 FI_0169A Mr Grigg Phase 1 Comparative Exercise QI2 Enlargement and Mr Grigg 29 September pages 109-110
98 Mr Grigg 29 September pages 109-111
99 Mr Wertheim 24 September page 28
100 Mr Wertheim 24 September pages 28-53

4. Mr Zeelenberg's point 11 coincides with Mr Swann's point 10 and Mr Zeelenberg agreed that this point was a ridge ending. Mr Zeelenberg's charting[101] has no gap corresponding to Mr Swann's point 4 and instead shows a ridge running through Mr Swann's point 4 and ending at Mr Swann's point 10.

26.69. To follow the competing interpretations of the print it is necessary to use figure 19 to give a consistent basis for comparison. The figure shows two lines of ridge features, points A, B and C on the upper line and D on the lower line.

Figure 19

26.70. Mr Swann, Mr Wertheim and Mr Zeelenberg were agreed that the features in the print corresponding to Mr Swann's points 4 and 10 were the line A-C but they differed as to the interpretation of those features: Mr Swann seeing them as separate ridge details and the other two seeing them as parts of a continuous ridge. Mr Grigg, on the other hand, inferred from a ridge count that the corresponding feature in the print was point D. Mr Mackenzie adopted an intermediate position.

26.71. Looking firstly at Mr Swann, Mr Zeelenberg and Mr Wertheim:

1. Mr Swann compared his points 10 and 4 (in the mark) with points B and C, respectively, in the print. He interpreted the gaps between points A-C as genuine ridge breaks. So interpreted, mark and print match.

2. Mr Zeelenberg agreed that the part of the print that corresponded to Mr Swann's points 4 and 10 was the line of features A-C. His charting of

101 AZ_0061 slide 152

the print highlights point C[102] and his interpretation was that there was a continuous ridge running through A-C, therefore, there was a difference between mark and print.

3. Mr Wertheim's analysis was close to that of Mr Zeelenberg. His drawing of mark and print is FI_2409.07 and shows A-C as a continuous ridge.[103] He described ridge D as an incipient and showed it as one of three incipients (highlighted in yellow) two intervening ridges above the core.

26.72. For Mr Grigg the relevant drawing is FI_2909.22 and the comparable feature is shown by the yellow line in the print. It is described as "a little independent-type ridge" ending at point D.[104] If the corresponding ridge ending in the print is at point D, the mark and print do not match because for a match the ridge ending (Mr Grigg's point 5 in the mark) should be at B, not D.

26.73. Mr Mackenzie adopted an intermediate position in relation to both the mark and the print.

1. Starting with the mark, his interpretation was an incipient and he drew it as the continuous blue line ending at the point indicated by the yellow arrow in FI_1111.03. He accepted that this was the same feature as Mr Wertheim's ridge ending and Mr Swann's points 4 and 10 and he took no issue with either of those witnesses as to the presence or absence of a gap: his position was that the structure may or may not have a break in it but, nonetheless, was an incipient.[105]

2. As to the match with the print, reference has to be made to the line of three incipients (including point D) that Mr Wertheim marked in yellow, shown in the image FI_1111.04. It was Mr Mackenzie's evidence that this chain of incipients continued to a point in the circle marked in FI_1111.04, which is as far left as point A but one 'ridge' lower.[106]

26.74. Mr MacPherson's evidence was that he considered Mr Swann's points 4 and 10 to be a continuous ridge but he volunteered that he could be wrong;[107] and it may be fairer to understand him as accepting that either interpretation was possible because, such was the lack of clarity, that the same appearances are capable of a variety of interpretations, which was why SCRO did not go to the upper part.[108]

26.75. It is well recognised that lack of clarity in a mark can present challenges to fingerprint examiners with different interpretations being possible. In this instance, the broken condition of the ridge structure in the print itself affords opportunities for interpretation. The lack of clarity in mark and print in combination result in four competing interpretations here: two supportive of identification (by Mr Swann and Mr Mackenzie); and two inconsistent with that finding ((1) by Mr Zeelenberg and Mr Wertheim and (2) by Mr Grigg).

102 AZ_0061 slide 152 (indicated by the yellow dot in the upper right image)
103 Mr Wertheim 24 September pages 28-53
104 Mr Grigg 29 September pages 109-111
105 Mr Mackenzie 11 November pages 54-59
106 Mr Mackenzie 11 November pages 64-67
107 Mr MacPherson 3 November page 26
108 Mr MacPherson 3 November pages 21-29 (particularly at 28-29)

Mr Mackenzie and third level detail

26.76. In February 2002 Mr Mackenzie prepared tracings of third level detail in the images of mark and print in his charting CO_2004h. The tracings are intended to be laid over images in the charting in CO_2005h. Mr Mackenzie's evidence was that it was appropriate to use third level detail to complement second level detail. His tracings span from SCRO points 4-9 (Mr Mackenzie's numbers 19-23 and '30') in the bottom right to SCRO points 11 and 12 (his points 27 and 29) in the bottom left.[109]

26.77. Third level detail has to be approached with caution in marks of poor quality.[110] The immediate concern with Mr Mackenzie's third level detail presentation is that it is anchored to SCRO points 11 and 12. As already discussed in paragraph 27 above, there is evidence of distortion in the mark to the right of SCRO 11 and Mr MacPherson and Mr Mackenzie differed as to whether that point was a ridge ending or a bifurcation. The reliability of SCRO points 4-9 is also questionable. When it is doubtful whether the level two detail can be seen with clarity, weight cannot be applied to suggested level three detail in the same area.

26.78. I cannot accept the level three evidence as a relevant factor in the decision regarding QI2 Ross.

Conclusion

26.79. There was little, if any, common ground among the witnesses.

26.80. QI2 is a difficult mark with distortion and superimposition. The background of the picture on the surface of the tin adds to this. The ridge structure in the post-mortem print of Miss Ross's right forefinger compounds the difficulties of comparison.

26.81. It is of concern that, though Mr Mackenzie and Mr MacPherson agree in the finding of identification, they are inconsistent in relation to the interpretation of significant 'events' in the mark including the 'chilli pepper', SCRO points 1, 16 and 10 (the eyelet or the spur) and SCRO points 11 and 12 (the lake or the bell). It is not sufficient to say that there is a consensus between them at the generic level of seeing matching 'events' in corresponding locations because one of the defining issues between them, on the one hand, and the contradictors on the other, relates to the interpretation of each 'event'. The inconsistencies in the interpretation of these 'events', and others, are a consequence of the lack of clarity in the mark and, to some extent, in the print also. Given the imperfections integral to fingerprint impressions (both mark and print) it is inevitable that there will be scope for differences of opinion in relation to the observation and interpretation of ridge detail. A reliable conclusion does not necessarily require a consensus on each and every detail. However, this is a question of degree and there comes a time when the lack of consensus on matters of detail ought to give rise to careful consideration whether there is sufficient clarity in the source materials for a reliable conclusion of identification. That is the case in relation to QI2 Ross.

109 Mr Mackenzie 2 October page 13ff at pages 21-22
110 See chapter 35 para 101ff

26.82. I find that there is a marked difference in the appearance of what has been described as the 'chilli pepper' in the mark and the print. Mr MacPherson and Mr Mackenzie gave inconsistent evidence regarding this detail with the consequence that I am unable to find a satisfactory explanation for the fact that it is significantly larger in the mark than in the print.

26.83. SCRO points 1, 16 and 10 appear in the mark to be on a continuous ridge but not in the print. The 'eyelet' was point 1 in Mr Zeelenberg's Phase 1 and, therefore, a feature that he was presenting as a point of difference between mark and print. In answer to that Mr Mackenzie said that the 'eyelet' was incomplete in the print due to a break in the powder on the digit of the deceased. This can only be surmise and it is open to question because Mr MacPherson (taking the opposing view that there was a 'spur') suggested that the deficiency lay in the reproduction of the impression in the mark (and not in the print). On one view this could be a defining point of difference but even if it is not the lack of any concurrence in interpretation of it adds to the uncertainty.

26.84. SCRO point 2 is open to two possible interpretations. The evidence of those who identified the mark as having been made by Miss Ross was conflicting on the question whether there was a bifurcation here. I recognise that that may be a narrow point open to legitimate difference of opinion because under different deposition conditions what is truly a bifurcation can appear as a ridge ending and vice versa. But Mr Mackenzie and Mr Swann, who both considered there to be a ridge ending, also differed as to where the ridge ending lay. Mr Mackenzie suggested that it was in fact a ridge continuing in an upwards direction, rather than a ridge ending at the point where others saw a bifurcation. The interpretations disregard a difference in thickness in the print and mark between the left leg of what is said to be a bifurcation or a ridge, and there were conflicting views whether there was significance in the different thickness of the ridges. I prefer on balance the interpretation of a ridge ending, as suggested by Mr Mackenzie, because of the unusual angle of the upper part of what is on the interpretation of a bifurcation said to be its left leg.

26.85. SCRO point 3 on the mark looks like a bifurcation with a dot at the apex. It differs in shape from the bifurcation in the print. Mr Mackenzie and Mr Swann see it in different places that are also different to where SCRO see it. This would confirm the opinion of Mr Zeelenberg and Mr Wertheim that the area is of too poor quality, due to smearing, to reach a satisfactory conclusion.

26.86. The lack of clarity in the mark undermines SCRO points 4-9. SCRO point 4 is said by SCRO and Mr Mackenzie to be a ridge ending. Mr Zeelenberg was unable to see it and Mr Wertheim said that there might be something there. I am unable to see a ridge ending possibly due to the white area in the picture of the tram underneath the place on the tin where a ridge is said to be. SCRO points 5 and 6 are of too poor quality to say if they are bifurcations or ridge endings. SCRO point 9 is said to be a ridge ending. Again this is in the white area just mentioned and is of too poor quality to reach a conclusion. SCRO points 7 and 8 are said to be ridge endings but they are in an area that is of too poor quality and close to, if not in, an area of superimposition. As a result it is not possible to confirm if they are ridge endings. In summary I consider that this portion of the mark is too poor to conclude that these points are observable and, even if observable, are truly in agreement. The similarity of these points has not been demonstrated.

26.87. Looked at in isolation I would accept SCRO point 12. I am not persuaded as to the existence of SCRO point 11 which is in an area of considerable disturbance. Mr Mackenzie and Mr MacPherson took these two points 11 and 12 in conjunction as their starting point in their examination of QI2. As I do not accept that SCRO point 11 exists it follows that I reject the two interpretations they have offered of a lake in the case of Mr Mackenzie and what became described as an open bell as suggested by Mr MacPherson.

26.88. SCRO point 13 appears to be a match and it is to be noted that Mr Zeelenberg accepted that SCRO point 14, taken in isolation, was similar by type and location. The difficulty is that, as Mr Wertheim, Mr Mackenzie and Mr Swann all found, the area to the left below SCRO point 14 is affected by superimposition and the artefact which has been described as a 'hook' is a red flag. This part of the mark is affected by distortion of some kind with the result that ridge counts cannot be relied upon. That undermines SCRO points 13 and 14 and, for that matter, the points of difference spoken to by Mr Zeelenberg (5 and 6) and Mr Grigg (2 and 3).

26.89. SCRO point 15 is described by SCRO as a bifurcation and is in an area with background interference and subject to distortion due to a swipe. Mr MacPherson and Mr Mackenzie placed the point in different positions. As the area is so faint a ridge count is not reliable. I am not satisfied that this is a point that can be relied upon.

26.90. SCRO were correct to ignore the area above the core in their original assessment. It is difficult to make anything positive out of the section at the top above the core corresponding to Mr Swann's points 1-4 and 10. That area was not central to the SCRO identification because no one of the 16 points initially relied upon by SCRO was in that area. The ridge detail in each of mark and print is not clear, and the conflicts among the witnesses are such that a confident conclusion is not possible.

26.91. Although Mr Mackenzie advanced a total of thirty one points, he did not seek to support the identification primarily by reference to the points unique to his charting. On the contrary, SCRO points 11 and 12 (his 27 and 29) were critical to his analysis and his evidence that those points defined a matching lake is not accepted. I did not find his additional points persuasive.

Determination

26.92. On my findings only three points (SCRO points 2, 10 and 12) appear to match. The number of points that has been established falls far short of the 16-point standard required in 1997. It follows that SCRO were wrong to identify QI2 Ross as having been made by Miss Ross judged by the standard in 1997 and the source material then available.

26.93. Such is the lack of clarity in the mark that I could not accept an identification on a non-numeric approach.

26.94. The other source materials, including the chartings by Mr Mackenzie and Mr Swann, that I have studied and the evidence relating to third level detail do not affect my conclusion.

26.95. My conclusion is that SCRO were in error in identifying QI2 as having been made by Miss Ross. There was a misidentification of QI2 Ross.

CHAPTER 27

XF AND VARIOUS "Q" MARKS ATTRIBUTED TO MR ASBURY

Introduction

27.1. This chapter considers the opinion evidence in relation to certain marks that SCRO identified as having been made by Mr Asbury namely XF, found on the gift tag in Miss Ross's living room, a number of marks found on the tin in his home (QI2 Asbury, QE and QL) and QD2 found on a bank note in the tin.

27.2. Distinct issues arise in relation to these marks and they require separate consideration.

XF

27.3. Mr Rokkjaer and Mr Rasmussen, Danish police fingerprint examiners who were engaged by the Crown in 2000,[1] and all of the witnesses involved in Phase 1 of the comparative exercise (including Mr Wertheim) confirmed that XF had been correctly identified.[2] Mr Swann illustrated 16 points in sequence and agreement in chart R in his presentation[3] to the Inquiry.

27.4. Mr Wertheim's reports dated 30 March 2000[4] and 6 October 2003[5] both contained statements that there were "unresolved questions" about XF and proceeded on the premise that he had not seen the gift tag. He posed questions regarding the authenticity of the mark XF in his Phase 1 response and witness statement to the Inquiry,[6] both documents proceeding on the basis that he had not seen the gift tag.

27.5. In summary, Mr Wertheim's main issues, which the Inquiry summarised in a letter, were:

1. The clarity of the mark was too good to be true.

2. It was reminiscent of a plain impression in a fingerprint form, suggesting that it might have been lifted by tape after an inked print had been dusted.

3. It did not exhibit the signs of normal handling i.e. he would have expected to see signs of slippage but did not.[7]

27.6. The Inquiry team investigated these questions with the assistance of Dr Bleay. For the reasons that he explained and demonstrated in his presentation at the Inquiry

1 See chapter 13
2 CO_0030, FI_0110 page 15 Mr Grigg Phase 1 Comparative Exercise, FI_0109 page 2 Mr MacLeod Phase 1 Comparative Exercise, FI_0130 page 15 Mr Wertheim Phase 1 Comparative Exercise, FI_0108 page 2 Mr Zeelenberg Phase 1 Comparative Exercise and FI_0111 SCRO Phase 1 Comparative Exercise
3 TS_0004 slide 19
4 FI_0118 Inquiry Witness Statement of Mr Wertheim pdf page 54 (at para 18 on pdf page 59)
5 FI_0118 Inquiry Witness Statement of Mr Wertheim pdf page 61 (at para 23 on pdf page 67)
6 FI_0118 pdf pages 11-12 Inquiry Witness Statement of Mr Wertheim and FI_0130 page 15 Mr Wertheim Phase 1 Comparative Exercise
7 FI_0150

hearing,[8] Dr Bleay concluded that mark XF was a naturally deposited mark from a real finger:

1. The original exhibit was available for inspection and showed that mark XF was still present. It was not a photo montage.

2. The mark did not appear to have been taken from Mr Asbury's arrest forms. It was, for example, wider in extent and, also, it did not contain any fibrous features that would be indicative of it being lifted from an inked arrest or elimination form. Nor was there any evidence of powder to suggest a powdered mark had been lifted and placed on the surface.

3. It was strongly developed, suggesting there was a high concentration of fingerprint residue in the mark. This would not be the case in a transferred mark where the developed mark would be considerably fainter.

4. The mark contained several features (such as pores, ring-shaped areas of development around pores, evidence of movement) that were more indicative of a naturally deposited mark than the use of a mould, stamp or fake finger.

27.7. Mr Wertheim accepted Dr Bleay's conclusions.[9] Initially he explained that his questions stemmed from the fact that he had not seen the original gift tag, only a photograph of it.[10] That was inconsistent with his contemporaneous notes of a visit to the procurator fiscal's office dated 25 April 2000, recording that he had examined XF and concluded that the print was "legit" (i.e. legitimate).[11] On being shown those notes Mr Wertheim admitted that he must have seen it at that time and apologised to the Inquiry that he had since forgotten that fact.[12]

27.8. It would have been outwith the terms of reference of the Inquiry to investigate how Mr Asbury's print came to be on the gift tag and the Inquiry has not done so.

Conclusion

27.9. The correct identification of XF by SCRO has been confirmed and the questions concerning the authenticity of that mark have been answered comprehensively. There is no reason to entertain any doubt about XF.

Q marks – introduction

27.10. The marks QD2, QE2, QI2 Asbury and QL2 featured in the case *HMA v Asbury* but not in the trial of Ms McKie. Mr Graham, who was instructed for the defence in *HMA v Asbury*, agreed with SCRO's identifications. Subsequently, the identification of each of these marks was put in issue by Mr Rokkjaer and Mr Rasmussen in their report to the Crown in August 2000.[13] The Q marks were not included in the

8 Dr Bleay 16 November page 157ff (from page 159) and EA_0171 slides 48-60
9 Mr Wertheim 22 September pages 106-107
10 FI_0118 pdf pages 11-12 Inquiry Witness Statement of Mr Wertheim and Mr Wertheim 22 September pages 106-107
11 CO_1734 pdf page 4
12 Mr Wertheim 22 September pages 110-114 and 23 November page 4ff
13 CO_0030

comparative exercise but the Inquiry did explore the specific issues concerning these marks that were raised in their report.

27.11. In the case of QD2 they reported that on the photograph marked QD2 (in Production 98) they had seen at least four clear details that could not be found on any of Mr Asbury's prints and so they concluded that QD2 did not originate from him.

27.12. In the case of each of the other three marks they reported that they could not determine whether the mark originated from Mr Asbury. They did not elaborate on their reasoning in relation to QL2 but they did give reasons for their conclusions on QE2 and QI2 (Asbury) that will be discussed below.

27.13. From the report by the Justice 1 Committee it was understood that Mr Rokkjaer and Mr Rasmussen had since changed their opinion at least in relation to QD2. Their initial contradiction of the identification of QD2 and their subsequent confirmation of the identification were, and remain, controversial. The Inquiry had correspondence with the Danish Fingerprint Department, in particular regarding QD2. Mr Rasmussen was understood to be unavailable and Mr Rokkjaer declined to attend the Inquiry.

QD2

27.14. There is a potentially significant complication in that the image of the mark QD2 that Mr Rokkjaer and Mr Rasmussen examined was not the same image that the SCRO examiners studied when they first identified it as Mr Asbury's right little finger. Mr Rokkjaer and Mr Rasmussen carried out their comparison in the procurator fiscal's office in Kilmarnock and were given the book of photographs which had been Production 98[14] in *HMA v Asbury.* The joint report signed by the SCRO examiners[15] implies that the images "now shown on pages 1 and 2 of Book A" (i.e. Production 98)[16] were the images used in making the identification but for QD2 this was not the case.

27.15. The Inquiry did not recover the original image of QD2 used by the SCRO examiners when the mark was first identified ('the SCRO image'). Photocopies of the front (bearing the initials of the examiners)[17] and back[18] (with writing by Mr MacPherson)[19] of that image were appended to a report by Mr M. J. Pass, an independent fingerprint examiner instructed by the Scottish Executive in connection with the civil case.[20] It is shown in figure 20.[21] The image of QD2 included in the court production ('the Production 98 image') covered a larger part of the banknote[22] - see figure 21. The SCRO image shows only the lower right quarter of the area in the Production 98 image and concentrates more clearly on the mark QD2 (though the label for the mark is not reproduced). The SCRO image was not lodged as a

14 SG_0010h and Sheriff Crowe 2 July pages 144-146
15 SG_0352
16 SG_0010h and FI_0055 para 105 Inquiry Witness Statement of Mr MacPherson
17 SG_0691
18 SG_0692
19 FI_0055 paras 102-103 Inquiry Witness Statement of Mr MacPherson
20 SG_0690
21 Taken from SG_0359h
22 SG_0010h

production in the trial and was not seen by external experts until 2006 when, for the purposes of the civil action brought by Ms McKie, additional images, including a scanned copy of the front of the SCRO image and enlargements of it, were made available. The Inquiry recovered examples of the scanned copies and enlargements that were made available in 2006.[23] The 2006 scanned copy of the SCRO image will be referred to as 'the SCRO scanned image.'

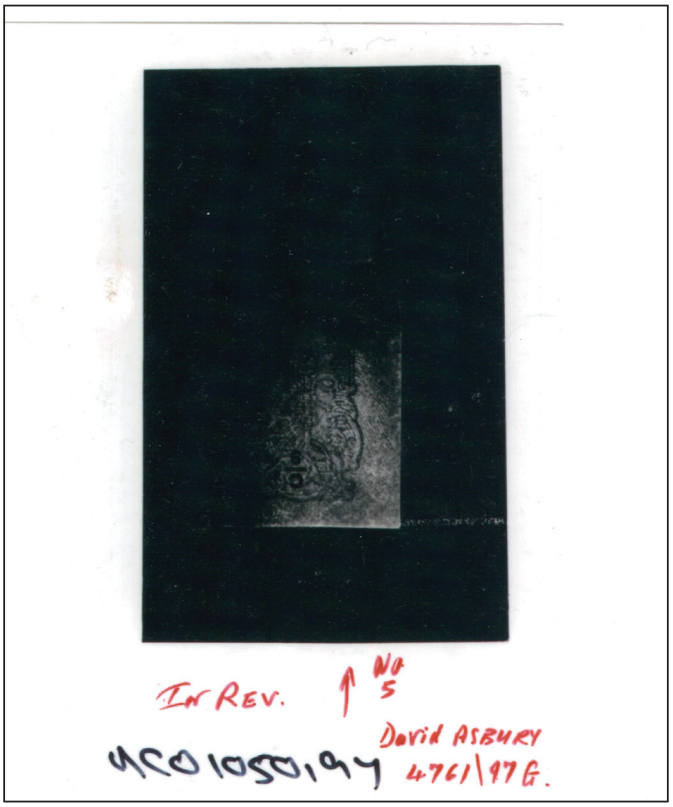

Figure 20

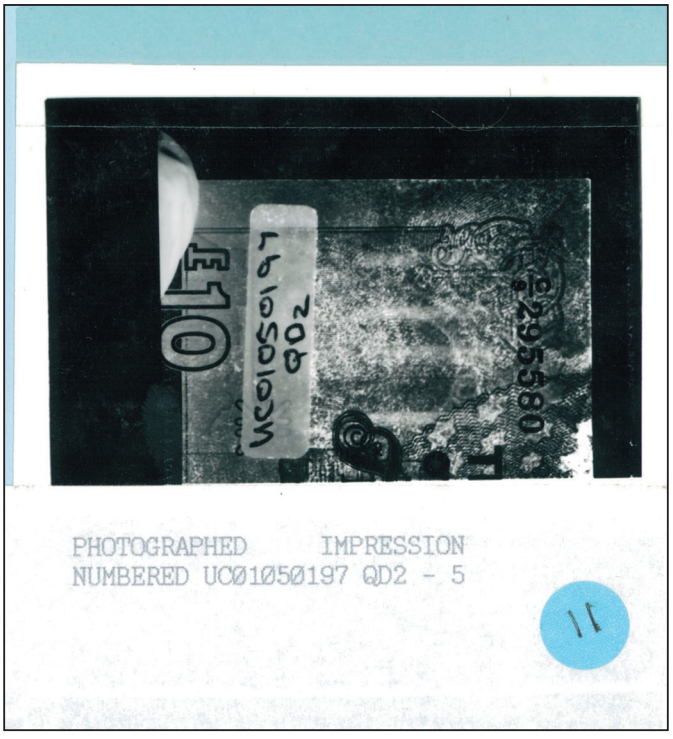

Figure 21

23 e.g. SG_0702 and SG_0693

27.16. In 2000, having examined the Production 98 image, Mr Rokkjaer and Mr Rasmussen reached this conclusion:[24]

> "Photograph of a fingerprint on a £10 banknote. The impression was compared with the item which was taken from sealed bag, marked label no. 75. No impression was seen on the £10 note.
>
> The impression was probably developed with the substance ninhydrin, which evaporates with time and does not leave any traces.
>
> On the photograph marked QD2 at least 4 clear details were seen. These details cannot be found on David Asbury's right little finger, nor on his other fingers as indicated in the SCRO's report.
>
> Conclusion The fingerprint marked QD2 does not originate from David Asbury." (emphasis original)

27.17. Mr Zeelenberg's submission to the Justice 1 Committee[25] and letters from Detective Commander Frank Jensen, of the Danish National Police Forensic and Serious Crime Department, and Mr Rokkjaer (to which reference will be made) are all consistent in explaining the sequence of events that prompted the change on the part of Mr Rokkjaer and Mr Rasmussen. The sequence starts with Mr Zeelenberg studying an enlargement of the SCRO scanned image in January 2006 during a meeting in connection with Ms McKie's civil case.[26] He compared this with a copy of Mr Asbury's print and found there to be "a solid identification" and because his finding conflicted with that of the Danes he liaised with Mr Rokkjaer. Mr Zeelenberg was shown a photocopy of the image that the Danes had seen (i.e. the Production 98 image) and he thought that the area where the QD2 mark was did not show in the same way in the two images perhaps due to a difference with the centring of the light source when the photographs were taken. He thought that the Danes might have picked up some other ridge detail on the Production 98 image since they had mentioned a mark with at least four minutiae, whereas the mark on the enlargement of the SCRO scanned image (i.e. QD2) showed very clearly many more minutiae.[27] He showed this enlargement to the Danish examiners and suggested that their original opinion must have been mistaken and this led to the change on their part.

27.18. That contact led to a letter to the Crown Office dated 1 February 2006 from Mr Jensen, who wrote: "There is no doubt that the print QD2 belongs to David Asbury. No differences between the prints were detected."[28]

27.19. Mr Rokkjaer provided his own explanation in a letter to the Inquiry dated 29 July 2009.[29] As Mr Zeelenberg's narrative suggested, the explanation turns on the difference between the two images. Mr Rokkjaer said that "the 'correct' finger print labelled QD2 was not visible on the material we were shown in 2000" but was visible in the 2006 image that they were shown by Mr Zeelenberg. Mr Rokkjaer

24 CO_0030
25 AZ_0006 pdf pages 6-7
26 AZ_0042 Annex G
27 AZ_0006 pdf pages 6-7
28 DB_0200
29 DP_0002

denied a change of opinion as such, saying "We have not changed our opinion with regard to our statements concerning the print QD2, as this is with regards to two different prints." The reference to two different prints was explained more fully earlier in the letter:

> "We maintain that the fingerprint labelled QD2, which we were shown in the year 2000 in Kilmarnock **is not identical** to the print from David Asbury's right little finger.
>
> At the same time we maintain that the fingerprint labelled QD2, sent to us by Arie Zeelenberg in January 2006 **is identical** to David Asbury's right little finger." (emphasis original)

In other words, in 2000 they had studied the Production 98 image and focussed on a fragment of another mark on the banknote and reached the conclusion that it did not match Mr Asbury; and in 2006, when given an enlargement of the SCRO scanned image, they examined QD2 and concluded that it did match.

27.20. The materials made available in 2006 were studied at approximately the same time by the SCRO officers and by Mr Pass.

27.21. The SCRO officers produced a supplementary report dated 30 January 2006,[30] responding to the first report by the Danish examiners unaware that their view was about to change. The SCRO report was accompanied by a book of photographs.[31] This did not contain a copy of the Production 98 image. In order to describe its contents it is necessary to know that both the Production 98 image and the SCRO image were "in reverse" i.e. they were images in which the ridges, which are normally black, appear as white. The book contained the SCRO scanned image[32] and a colour reversal[33] of it. That colour reversal (being a reversal of a reversal) can be referred to as the "corrected" image. The book also included a charted enlargement showing 16 points in sequence and agreement in mark and print compiled using the corrected image as the basis for the comparison.

27.22. Mr Pass's report for the Scottish Executive dated 30 January 2006[34] set out his findings. He confirmed the identification of QD2 using the SCRO scanned image. He also worked with the Production 98 image and his observations on this image are worthy of note:

> "This additional photograph is considerably lighter and discloses three additional areas of fragmentary ridge detail.
>
> I have examined these and have reached the following conclusions:
>
> two of these areas contain insufficient ridge detail for comparison purposes.

30 SG_0706
31 SG_0359h and FI_0055 para 106 Inquiry Witness Statement of Mr MacPherson
32 SG_0359h pdf page 2 (also available to the Inquiry as SG_0702)
33 SG_0359h pdf page 3 (also available to the Inquiry as SG_0703)
34 SG_0690

the third area although the quality is relatively poor, consists of first and second level detail and I have no doubt that it was also made by the right little finger impression of 'DAVID ASBURY'."

27.23. For completeness, Mr Swann included a charting (chart I) of QD2 in his Inquiry presentation.[35] That is based on a comparison of Mr Asbury's print with a copy of the corrected image of the mark.

27.24. The explanation that Mr Rokkjaer has provided, that QD2 was "not visible" on the Production 98 image, remains controversial for two reasons.

27.25. The first is that though the two images are different other experts were able to work with the Production 98 image.

1. Mr Pass did so. He confirmed that the larger area in the image in Production 98 did contain other fragments of marks which were incapable of identification but he was able to identify Mr Asbury as the maker of at least one mark by reference to that image, despite its poor quality.

2. It was the book of photographs in Production 98 that Mr Graham studied on 7 May 1997[36] and he studied them in similar circumstances to Mr Rokkjaer and Mr Rasmussen, in the procurator fiscal's office in Kilmarnock.[37] He was able to confirm all of the SCRO identifications despite his general reservation about the quality of some of the images:

   "The photographs of Y7, there were two of them were good, just what I would expect to find in a case of that nature. Some of the other ones were not so good for various reasons. The fingerprints were maybe not very good, the background was difficult to see, the photographs could have been done better, the enlargements were appalling, the marking up of the enlargements was bad. But I agreed with all the identifications."[38]

27.26. Secondly, the SCRO examiners have been critical of the erroneous assumption by the Danish examiners that QD2 was "probably developed with the substance ninhydrin" when it had been developed using DFO and Quaser light. In their own report dated 30 January 2006[39] the SCRO examiners expressed concern that no mention had been made by Mr Rokkjaer and Mr Rasmussen of the image of the mark QD2 being a colour reversal, the outcome associated with development using DFO and Quaser light.[40] That said, there is evidence from Mr MacNeil of the Identification Bureau that ninhydrin was used on the banknotes, after the mark was developed and photographed[41] but before the banknote was seen by the Danish experts.

35 TS_0004 slide 10
36 DB_0202
37 Mr Graham 9 July pages 84-90
38 Mr Graham 9 July page 90
39 SG_0706
40 See chapter 19 para 34
41 FI_0018 paras 41-42 and 51 Inquiry Witness Statement of Mr MacNeil

27.27. Given the facts that Mr Graham[42] and Mr Pass[43] were both able to work with the Production 98 image and that Mr Rokkjaer and Mr Rasmussen may have made a wrong assumption about the manner in which the mark had been developed, it is not possible to say conclusively that their first conclusion is explicable on the basis that the Production 98 image was inferior although image quality is a critical variable in fingerprint work. It was unfortunate that the image included in the court production was not the image that the SCRO officers had actually examined when the mark was first identified.

Conclusion

27.28. There is now a consensus that QD2 was properly identified by SCRO as the right little finger of Mr Asbury.

QE2, QL2, QI2 Asbury

27.29. In their 2000 report[44] Mr Rokkjaer and Mr Rasmussen concluded that the quality of photographs they were shown of the marks attributed to Mr Asbury, QE2, QI2 and QL2 (in Production 98), was insufficient for identification. They reported:

- QE2: “The quality of the photograph was too poor for comparison with David Asbury’s fingerprints. To examine the impression on the tin required special light which was not available. Conclusion: It cannot be determined whether the impressions originate from David Asbury.”

- QI2 “pattern type - loop”:[45] “Because of the said lack of special light, as well as the poor quality of the photograph, it was not possible to make a comparison between the impression and David Asbury’s fingerprints. Conclusion: It cannot be determined whether the impression originates from David Asbury.”

- QL2: “Conclusion: It cannot be determined whether the impression originates from David Asbury.”

27.30. In concluding their report they noted: “In order to carry out identification of a fingerprint in Denmark, there must be at least 10 distinct details that correspond in the impressions. In addition it is extremely important that no ‘false details’ are seen i.e. details that can be clearly seen on the one impression but do not exist on the other. In order to determine whether they are identical or not, it is also a requirement that the impressions are clear and that the overall impression with regard to size, shape and line structure corresponds between the impressions.”

27.31. To be precise, the Danish examiners were not necessarily contradicting SCRO in relation to QE2, QI2 Asbury and QL2. Again, the photographic images that had been included in Production 98 were not the actual images that the SCRO examiners studied when they made the initial identification. The actual images that the SCRO examiners studied have writing on them. Clean images were used in Production 98. For QE2, QI2 and QL2 there is not the added complication

42 DB_0202
43 SG_0690
44 CO_0030
45 i.e. QI2 Asbury

that arose in relation to QD2. For these three marks the images appear to be photographic reproductions of the same image from the negatives.

27.32. The Inquiry investigated whether the marks QI2 Asbury, QE2 and QL2 were of sufficient quality for comparison. The fingerprint department of the Police Service of Northern Ireland (PSNI) was asked to undertake a limited review to assess whether the images of these marks contained sufficient ridge detail for comparison, "in effect, to give us a second opinion on not the identity of these marks as having been made by David Asbury but rather whether the images were of sufficient quality to be used in a comparison exercise."[46]

27.33. Teams led by Mr Logan, Head of the PSNI Fingerprint Bureau, did this work.

27.34. The materials made available to the PSNI included the actual photographic images that the SCRO examiners had studied at the time of the identification.

QE2 and QL2

27.35. The PSNI was given the actual photographic images of QE2[47] and QL2[48] that SCRO had used.

27.36. There were differences of view among the members of the PSNI team.[49] In each case the views ranged from a value mark, suitable for comparison, to the mark contained insufficient ridge detail for identification but the pattern could possibly be used to eliminate individuals.[50] The overall conclusion was that each of these marks had sufficient ridge characteristics for comparison.

27.37. The range of opinion among the members of the team can be reconciled with the overall conclusion in favour of the marks being suitable for comparison by reference to the PSNI's policy for establishing whether a mark has sufficient ridge characteristics for a comparison to be made. A mark must be examined by two examiners and both must agree on an insufficient ridge detail (IRD) status. Should either of them disagree the mark is retained for comparison purposes. PSNI policy is also that staff check all imprints, both those considered of value and those considered IRD, against suspects and elimination fingerprints.[51]

Conclusion

27.38. The Inquiry wished to know whether QE2 and QL2 were suitable for comparison. The overall conclusion reached by the PSNI is consistent with an affirmative answer to that question and I so find. It was not considered necessary to conduct any further inquiries in relation to those marks.

QI2 Asbury

27.39. QI2 Asbury was to prove to be more complicated and the PSNI was given a succession of tasks.

46 Counsel to the Inquiry 16 November page 4
47 CO_1991h
48 CO_1992h
49 NI_0002 and NI_0003
50 NI_0002 and NI_0003
51 NI_0002 and Mr Logan 16 November page 6

27.40. The Inquiry had more than one annotated original image of QI2. The one primarily referred to in this Report is DB_0001h, the image containing manuscript references to the identifications of the marks of both Miss Ross and Mr Asbury. A second annotated original image, CO_1993h, contains a reference only to Mr Asbury.

27.41. The PSNI was initially asked only whether QI2 Asbury had sufficient ridge detail to be of comparable quality. At first the PSNI was supplied with the image CO_1993h.[52] The overall conclusion, with some qualifications by some members of the team, was that it had insufficient ridge detail for comparison.[53] To ensure that they had examined the correct part of the mark they were subsequently provided with an enlargement outlining QI2 Asbury and other images, including the image DB_0001h. The conclusion was unchanged.[54]

27.42. Mr Logan illustrated the limited characteristics (eight in total) that were possibly observable[55] but explained that the conclusion that the mark contained insufficient ridge detail for comparison was due to the fact that it was affected by distortion, movement and superimposition and apparently contained two recurves of a possible loop or loops.[56]

27.43. At this stage, the PSNI had looked only at the mark.[57] Mr Logan variously described the initial exercise the PSNI had undertaken for the Inquiry as "artificial"[58] or "unorthodox".[59] He explained that this was not because there were no prints - that was quite normal - but because the PSNI did not have a range of images of the mark.[60]

27.44. The Inquiry team asked the PSNI to undertake further work, in stages.[61]

27.45. Meantime,[62] Mr MacPherson produced for the Inquiry a charted comparison[63] of the mark QI2 Asbury and a plain impression of Mr Asbury's print, countersigned by Mr Geddes and Ms McBride. This comparison used Inquiry images and illustrated 17 points in coincident sequence.

27.46. In all the PSNI was supplied with the following materials:

(i) the photocopies[64] of Mr Asbury's ten print forms that the Inquiry had;

(ii) the two original images of the mark QI2 studied by the SCRO officers;[65]

(iii) images prepared for the Inquiry by Dr Bleay:

52 CO_1993h
53 NI_0002
54 NI_0002
55 NI_0004
56 Mr Logan 16 November pages 56-61
57 Mr Logan 16 November page 8
58 Mr Logan 16 November page 1
59 Mr Logan 16 November page 28
60 Mr Logan 16 November page 28ff
61 NI_0005 and Mr Logan 16 November page 8ff
62 Mr Logan 16 November page 9
63 TC_0031
64 See chapter 1
65 DB_0001h and CO_1993h

- actual size photographic image of QI2,[66]
- enlargement of QI2 Asbury "sharp",[67]
- enlargement of Mr Asbury's print, right middle "plain",[68]
- actual size photographs of QI2 with a ruler/scale – original colour, greyscale and greyscale brighter,[69]
- two photographic enlargements of the whole of the QI2 cluster;

(iv) the Identification Bureau negative of the images;

(v) Mr MacPherson's charting;[70] and

(vi) an actual size replica of the tin.

27.47. In the first stage of the exercise the PSNI was asked to examine Mr Asbury's prints to complete their initial analysis of the mark; and to do that without considering the new images of the mark. Examination of the prints did not change their conclusion because no member of the team could count between the groups of characteristics to right and left of the original image of the mark.[71] It was their unanimous opinion that they could not rule out the possibility that the mark was made by Mr Asbury, but they would not be willing to say conclusively that it was made by him.

27.48. In the second stage they were asked to examine the materials used by Mr MacPherson (in blank and not with his chartings marked).[72] They reported that any differences in the quality of the images were not sufficient to alter the conclusion.[73]

27.49. In the third stage, the PSNI gave the negative to the PSNI fingerprint photographer who adjusted the exposure and contrast and produced a variety of photographic images. The team selected one of those images as being the most suitable for making a comparison. The fourth stage of the exercise involved a comparison using this image, still without the PSNI team members studying Mr MacPherson's charting.[74] PSNI concluded not only that it was of comparable quality but also that ten points were in coincident sequence with the right middle finger of Mr Asbury and four of the five members of the team were able to count between the two sides of the mark. "As a result of this new comparison" PSNI were "conclusive" that the mark QI2 Asbury matched the right middle finger of Mr Asbury, which was the identification that SCRO had made.[75]

27.50. The PSNI identification was based on ten points in coincident sequence observed on a comparison of the selected PSNI image and the rolled impression[76] of Mr Asbury's print. That result was reported by letter[77] and illustrated in a charted enlargement.[78]

66 EA_0183
67 EA_0167
68 EA_0170
69 EA_0184; see chapter 19
70 TC_0031
71 NI_0005, NI_0008 and Mr Logan 16 November pages 61-72
72 Mr Logan 16 November pages 11-12
73 NI_0005 and Mr Logan 16 November page 72
74 Mr Logan 16 November page 13
75 NI_0005 and Mr Logan 16 November pages 80, 87-88
76 Mr Logan 16 November pages 13-14
77 NI_0005
78 NI_0007

27.51. On one view there remained differences in detail as between PSNI and SCRO, the main difference being that PSNI found only ten points in coincident sequence, whereas in the new charting prepared for the Inquiry Mr MacPherson and his colleagues found 17. There were also underlying differences in relation to the source materials used: separate images of the mark were used and PSNI made a comparison with a rolled impression, whereas Mr MacPherson had used a plain. It was decided not to pursue these points of difference because the Inquiry's limited objective had been to investigate the doubt raised by the Danish examiners and the fact that the PSNI agreed the identification was sufficient to resolve that doubt.

Conclusion

27.52. The SCRO finding that mark QI2 Asbury was made by the right middle finger of Mr Asbury has been independently verified by the PSNI. It is accepted that the SCRO officers correctly identified that mark.

The Fingerprint Inquiry | Scotland

The Fingerprint Inquiry Report

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Part 5

The Inquiry's Findings as to how the Errors Arose

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CHAPTER 28

FACTORS CONTRIBUTING TO THE SCRO DECISIONS ON Y7 AND QI2 ROSS

Introduction

28.1. When SCRO management instructed a verification of 123 serious cases in which each, all or any of the four suspended officers had provided evidence in the year before and after the McKie case, the exercise showed the SCRO identifications to be 100% accurate. The independent examination of all cases over a 13-month period involving SCRO fingerprint evidence, announced by the Lord Advocate in the Scottish Parliament in June 2000, arrived at a similar result.[1] How then did SCRO officers make erroneous identifications in these two connected instances?

28.2. Any suggestion that the officers conspired together in order to identify Y7 as being the mark of Ms McKie can be dismissed. With the exception of Mr Stewart - who had been involved in an earlier case and had no contact since then - they did not know Ms McKie and had no reason to do so. There are satisfactory explanations for the factors that led the National Training Centre to report the possibility of collusion.[2] Moreover, Mr Swann, an independent expert with many years' experience, was also of the opinion that the mark was made by Ms McKie. Like the SCRO officers he had no reason wrongly to attribute it to his client Ms McKie.

28.3. As the debate during the Inquiry has shown, the lower part of the mark bears a superficial resemblance to the print of Ms McKie making human error the likely explanation.

28.4. The same can be said of QI2 Ross. The identification of this mark as that of Miss Ross on a tin found in the home of Mr Asbury was compelling evidence against Mr Asbury. Mr Graham, an independent expert with many years' experience, was instructed on behalf of Mr Asbury and agreed the identification. Although there is no evidence whatsoever that they did so, if SCRO officers were prepared to put their reputation at risk to secure a conviction one has to ask again why an independent expert for the defence would put his reputation at risk by agreeing with them.

28.5. While I am satisfied that two wrong identifications were made, I am equally satisfied that there was no conspiracy and no impropriety and that there is nothing sinister about the fact that this happened twice within a short period of time. I have no doubt that it was attributable to human error alone. The factors that contributed to the error are not unprecedented. On the contrary, reference to the reports of the INTERPOL European Expert Group on Fingerprint Identification (IEEGFI) entitled 'Method for Fingerprint Identification'[3] shows that the same factors have been involved in other cases of misidentification.

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1 SP_0004 Black Report appendix 1(a) paras 3.16-3.18 and PS_0147 - Lord Advocate's Written Answer to Parliamentary Question S1W-16832, Scottish Parliament 6 July 2001

2 See para 96ff below

3 INTERPOL European Expert Group on Fingerprint Identification – IEEGFI (2000) Method for Fingerprint Identification, URL: http://www.interpol.int/public/Forensic/fingerprints/WorkingParties/IEEGFI/ieegfi.asp?HM=1; and IEEGFI II (2004) Method for Fingerprint Identification Part II, URL: http://www.interpol.int/Public/Forensic/fingerprints/WorkingParties/IEEGFI2/default.asp

Absence of alternative identifications

28.6. Other inquiries into fingerprint misidentifications, including the error made by Nottinghamshire Police in the Lee case[4] and the FBI in the Mayfield case, have had the convenience of knowing the true donor of the mark in question. In addition, the OIG's investigation of the Mayfield case had the benefit of admissions by the fingerprint examiners that they had made an error.[5] I do not have the consolation of alternative identifications of Y7 and QI2 Ross and the SCRO examiners, and others, remain firmly of the view that these marks were correctly identified.

28.7. In these circumstances I have limited direct insight into the causes of error. I have to infer the causes of error from my own examination of the marks, my understanding of the methodology of fingerprint comparison work and evidence about the practices of SCRO.

Overview: weaknesses in the methodology applied

28.8. Systems of work are designed to guard against error. Systems failures do not inevitably result in error but they do create the risk of error. The method of work described by the four SCRO officers displays a number of recognised risk factors and in the case of Y7 and QI2 Ross it is likely that these risks crystallised into the misidentifications.

28.9. The SCRO officers, Mr MacPherson, Mr Stewart, Mr McKenna and Ms McBride, were all in-house trained and accordingly described similar methods of working. The following descriptions concentrate on Y7 but it is understood that QI2 Ross will have been approached in the same manner.

28.10. Mr MacPherson described a process of analysis of the mark based on the practice developed when searching manually collections of fingerprints some years ago. In the interests of efficient searching, digit determination had been a priority.[6] Analysis involved observation of the general pattern (whether whorl, loop or arch) and the direction of these. It also involved consideration of whether there was distortion or a double touch. He spoke of looking for as many characteristics in the mark as possible, although those would not be counted or recorded. In the course of analysis, a group of characteristics ('the target group') would become the focus of the examiner's attention. He gave the example of SCRO point 9 and what he described as an adjacent lake in Y7. As far as he could remember, those were the characteristics that first caught his eye in Y7. His practice was then to work outwards from the target group.

28.11. He would look at the mark and the print simultaneously. He would place one glass on the mark and another on the print. Although some colleagues looked from one to the other, he said that he had developed an ability to look at both at the same time.[7] It is plain from his description that he was not looking simply from the mark to

4 See chapter 38 para 54

5 US Department of Justice, Office of the Inspector General (2006) Review of the FBI's Handling of the Brandon Mayfield Case (Unclassified and Redacted) (US Department of Justice) URL: http://www.justice.gov/oig/special/s0601/final.pdf, pdf pages 221-222

6 Mr MacPherson 27 October pages 47-51. Mrs Tierney gave similar evidence under reference to her training in Northern Ireland - 12 November page 59.

7 Mr MacPherson 27 October page 59

the print, but in some way making sense of the two visual images together. When he was satisfied as to identity, he would sometimes take the mark and the print to the comparator and mark on it his points of comparison and he thought this is what he did with Y7[8] and QI2.[9]

28.12. Mr Stewart's description of his own method of work was similar. He would begin, after checking the paperwork, by looking overall at a mark, and deciding whether there was enough detail in it to allow him to reach a conclusion. If there was he would go on to consider whether he could see a pattern, and whether he could see the core or a delta to give him a starting point for comparison. He would then look for problems such as superimposition or movement, and consider whether the mark "looked right" for the surface from which it was said to have been recovered. He would consider which digit was involved. He would then pick out an area in the mark with three or four characteristics to give him a starting point. He said he was taught to use both eyes simultaneously, which was quicker and more accurate because he was not relying on memory when comparing one with the other. By using both eyes simultaneously he was doing what was, effectively, a simultaneous comparison. He would use two glasses, with "one eye over the mark and one glass over what digit [he] was comparing in the fingerprint form." He would then look at the fingerprint form to see if he could see the group of characteristics. If he could, he would check they were in correct sequencing relationship to the other. He would go back to the mark and see where the next characteristics were in relation to the starting group, then return to the fingerprint form and see if he could find those in the same relation to the starting group. He would keep going and "build up the process" as he went through it. He did not record the characteristics observed on the mark but would use pointers to assist with counting the ridges intervening between characteristics.[10]

28.13. The record of the findings on the image of QI2 contains the words "on screen" in relation to both Miss Ross and Mr Asbury. Mr Stewart said that those words meant that the mark had been placed on the comparator for viewing and did not mean necessarily that he carried out any part of his comparison on the machine. He said that he would have carried out a comparison using glasses and doubted that he used the comparator. He conceded that if there were markings on the screen when he first picked up any mark he would have a quick look at them before carrying out his own comparison but he could not recall if there were markings on screen for QI2.[11]

28.14. Mr McKenna's recollection[12] was that he picked up Y7 from the comparator machine and took it back to his desk to check it before returning it to the comparator screen to check that he had 16 points. He could not recall if there were markings on the comparator screen other than signatures when he first collected the mark and print. At his desk he proceeded straight to examination of the mark and print together and gave no account of a separate preliminary analysis of the mark. His normal way of working was to look at the mark and print

8 Mr MacPherson's description of analysis and comparison is at 27 October pages 45-66.
9 FI_0055 paras 118-119 Inquiry Witness Statement of Mr MacPherson
10 Mr Stewart 5 November pages 34-41
11 FI_0036 paras 173-174 Inquiry Witness Statement of Mr Stewart and Mr Stewart 5 November pages 43-44 and 173-174
12 Mr McKenna 6 November pages 25-31

at the same time, having one eye on each. Use of target groups was something that he described as natural, though his own normal method of carrying out any comparison was to scan the mark and print for some characteristic from which to start and that could be either on the mark or on the print. He would then look for other characteristics in sequence and agreement working between the two images. He kept a mental count as he went along, stopping once he had 16,[13] and he would go to the comparator to check that he had that number.[14] He accepted that it could happen that he found less than 16 points very easily working backward and forward between mark and print and would then have to work a lot harder to find the points that took him up to 16, but said that he would not put himself under pressure to get 16: "If I could not find 16; I could not find 16."[15]

28.15. Mr McKenna was not among those who first identified any part of QI2. He would have looked at that mark for the first time either when he signed the case envelope or when the joint report was being prepared. He said that he would have used glass and possibly also the comparator machine.[16]

28.16. Ms McBride likewise was not among those who first identified QI2. As for Y7, she was understandably uncertain given the passage of time whether she selected a target group for her comparison. It would seem that it was not her invariable practice to begin with a target group (a term that she did not use)[17] because the pattern could in some instances be bland. She may have chosen a group of characteristics to start with, but it would have been far easier to start at the core and work out, and she thought it may be more likely that she did so. She could not recall with what features she began when working with Y7.[18]

28.17. She did, though, give a clear account of her general method of working.[19] It was her practice to check the whole mark and thereafter she carried out a comparison in the manner described by Mr Stewart in his evidence, which she termed a "binocular comparison", carried out simultaneously with one linen glass over the print and the other over the mark. Working in this manner she would form pictures in her head of mark and print and would focus her mind, rather than her eyes, when using pointers to check ridge counts. She did not at this stage count the number of matching ridge characteristics but would do so only after she had reached what counsel described as "a personal point of certainty": that is to say, having checked and double-checked and being certain "beyond reasonable doubt or beyond your own doubt" that there was a match.[20]

28.18. Fingerprint examiners now practise in accordance with the acronym ACE-V and though that acronym was not current at the time when Y7 and QI2 Ross were being considered, the SCRO examiners said that it reflected their approach to their work. Each of the initials ought to[21] spell out a distinct stage in the methodology but it is recognised that there is a tendency for the stages to merge, with analysis (A)

13 FI_0054 para 31 Inquiry Witness Statement of Mr McKenna
14 FI_0054 para 30 Inquiry Witness Statement of Mr McKenna
15 Mr McKenna 6 November pages 30-31
16 FI_0054 paras 113-114 Inquiry Witness Statement of Mr McKenna
17 Ms McBride 6 November page 128
18 Ms McBride 6 November pages 126-130
19 Ms McBride 6 November pages 126-137
20 Ms McBride 6 November pages 136-137
21 The extent to which this is actually achieved in practice is considered in chapter 36.

often overlapping with comparison (C). Without diminishing any of these stages, because practices do vary, greater weight may rest on proper evaluation (E) and verification (V). Fingerprint work is an exercise that calls for the application of subjective judgment and there is a need for careful evaluation by each examiner of the assumptions made in the course of an examination. Finally, the separate requirement for verification is intended to ensure that the reliability of the conclusion is demonstrated by the concurrent findings of a number of individuals (a total of four in SCRO at that time) acting independently.

28.19. No specific criticism falls to be levelled at the fingerprint examiners for not following the ACE-V protocol in 1997. It was not then in common currency in the United Kingdom. That said, the acronym was understood to have been a reflection of common sense and hence a reflection of the practice that was followed at that time. Mr MacPherson's comment is perhaps typical: "ACE-V was just verbalising what you did."[22] However, it is clear from the summary above that the SCRO officers did not subject themselves to the disciplines of the separate stages of a literal application of the ACE-V methodology.

28.20. The analysis stage of the process for them involved such matters as identification of pattern type, identification of areas which appeared in some way distorted or unclear, an attempt at digit determination, and the identification of a target group of features which the examiner would then use in the initial stages of determining whether there was a match between the mark and a particular print.

28.21. Other examiners external to SCRO also spoke of the use of a target group of points but there was care as to the stage in the process at which this was done. Mr Chamberlain said that it came after the initial analysis of the whole mark and as a logical start to the comparison stage. As he put it, it is possible to put an 'S' between the 'A' and 'C' of ACE-V to signify that the comparison begins with a 'search' area.[23] Mr Grigg also said that examiners will start any comparison with a set of strong features, or 'target group'. As he explained, the analysis stage requires that all features of the mark (and not just the target group) are analysed before comparison.[24]

28.22. Although SCRO examiners spoke of looking at the whole mark, there was no systematic effort to assess in its entirety the volume and quality of information available in the mark before moving on to consider the known prints. There was no systematic assessment or noting of the number of characteristics visible, or whether, from the mark alone, the examiner had formed a view that a characteristic was, for example, a bifurcation or a ridge ending as distinct from an 'event' which might be either of the two, or even an artefact on the mark or the image of the mark. There was no systematic assessment or noting of the degree of confidence of the examiner in any view he had formed as to the nature of a particular characteristic.

28.23. The need for comprehensive analysis of the mark before the selection of any target group has relevance to reverse reasoning: that is to say, using clearer detail in the known print to elucidate detail in the mark. The majority view of the experts who

22 Mr MacPherson 27 October page 137
23 Mr Chamberlain 18 November pages 23-24
24 Mr Grigg 29 September pages 7-10

gave evidence to the Inquiry was that reverse reasoning is permissible to some extent but needs careful consideration at the evaluation stage. Mr Zeelenberg's description of the evaluation stage of ACE-V is a guard against the premature formulation of an 'inner conviction' and a deliberate strategy to postpone the point at which the examiner reaches a conclusion as to identity; one built into the process in the awareness that it can be difficult for an examiner to alter his view once he has reached a conclusion as to identity. It is a separate stage in which the examiner balances the pros and cons regarding the identification.[25] Mr MacPherson did not recognise a separate 'evaluation' stage as is in the ACE-V process[26] and, as will be discussed, he did speak of an inner conviction formed part way through, and not at the end of, the process.

Detailed consideration

28.24. In building up a picture of the causes of misidentification it is necessary to give more detailed consideration to the specific risk factors that were present in the working environment and practices prevalent in SCRO in 1997-1999.

28.25. The factors to be addressed are:

(i) practitioners being taught 100% certainty, which could be attained prematurely in the examination process on the basis of relatively few matching characteristics;

(ii) the ethos in the SCRO fingerprint bureau where pride was taken in an ability, particularly on the part of more experienced officers, to identify marks that other bureaux might not consider sufficient for identification;

(iii) an inappropriate hierarchical philosophy;

(iv) the application of inappropriate tolerances in the observation and interpretation of detail in marks and prints;

(v) reverse reasoning;

(vi) the influence of repeated viewing of known prints;

(vii) concentration on target areas;

(viii) circular reasoning in relation to the 16-point standard and the explanation of differences and generalised thinking;

(ix) slack working practices such as the inappropriate use of the comparator machine;

(x) a failure to address the distinction between eliminations and identifications; and

(xi) contextual information from the police.

25 FI_0201 para 23 Inquiry Witness Statement (Supp.) of Mr Zeelenberg
26 Mr MacPherson 27 October pages 64-66

100% certainty

28.26. Fingerprint examiners are taught that once they have reached a conclusion they can be 100% certain in their own mind that the identification is correct and, moreover, that they can expect any other examiner of similar training and experience to reach the same conclusion.

28.27. It is critical to note that even in the days of the 16-point standard the tipping point of 100% certainty would in all probability arrive before the examiner had found 16 points in sequence and agreement. Evett and Williams explained the 16-point standard as a legal practice only and, having observed that fingerprint examiners reached their conclusion on a lesser number of points, cautioned that "It is important to understand that a fingerprint expert regards any identification as a certainty."[27] Mr MacPherson's evidence was that when he got a 'sufficiency' of characteristics in sequence and agreement he knew within himself that the mark and the print had been made by one and the same person.[28] Counsel referred to that variously as an 'inner conviction'[29] or, in a question to Ms McBride, 'a personal point of certainty'.[30] As will be discussed later, that inner conviction led Mr MacPherson to a circular argument discounting differences as matters that must be capable of explanation without knowing what the precise explanation was and the same process of reasoning would inevitably tend to influence an examiner to interpret ambiguous or obscure detail in a manner consistent with positive identification.

28.28. The prevalent belief in 100% certainty may also have diminished the independence of the verification stage of the process because a verifying examiner might tend towards confirming the view of the first examiner, particularly if the first examiner was a senior one, as was the case for Y7 and QI2 Ross where Mr MacPherson was the first examiner. This risk of sub-conscious bias is related to the tendency, noted below, to have undue confidence in the ability of senior SCRO examiners to interpret difficult or complex marks.

28.29. It may also be observed that the belief in 100% certainty was bound to reduce the utility of asking any particular fingerprint examiner to re-consider his or her own findings. Some of the SCRO examiners involved with Y7 personally re-examined the mark on a number of occasions by reference to a variety of source materials but given that each had already reached a conclusion with 100% certainty it is no surprise that each individual's re-examination led to confirmation of the initial conclusion.

The ethos in the SCRO fingerprint bureau in 1997

28.30. The evidence regarding the reputation of SCRO is summarised in chapter 21.

28.31. The HMICS report highlighted what it called "an 'internalised' culture"[31] and further insight into this was provided by Mr Luckraft. Though he worked at SCRO between 2000 and 2001 when SCRO was 'under attack' and therefore on the defensive, his evidence was descriptive of an atmosphere that is likely to have existed before then.

27 CO_1375 pdf page 30
28 Mr MacPherson 27 October page 134
29 Mr MacPherson 27 October page 135
30 Ms McBride 6 November page 137
31 SG_0375 para 8.14.1

28.32. While the SCRO officers took pride in the reputation of the bureau as amongst the best (if not the best) in the world, Mr Luckraft perceived arrogance in this approach. He pointed to a 'culture' at SCRO which was in his view 'insular' and "not willing to listen to other ideas",[32] accompanied, in particular, by a belief that senior examiners such as Mr MacPherson and Mr Mackenzie were incapable of making a mistake. He inferred that this ethos could produce peer pressure that could "possibly result in a bias towards fingerprint identifications."[33]

28.33. An ethos in which officers pride themselves in their work is not necessarily a matter of criticism. The fact that in over 1700 cases identifications made by SCRO examiners were confirmed by other bureaux[34] shows that there was some justification for the confidence that the SCRO examiners had in their own ability. However, the belief among the SCRO examiners that they could identify marks that others would regard as unsuitable for comparison carried the risk that with difficult and complex marks, such as Y7 and QI2 Ross, they would be tempted to make identifications where the quality and volume of information did not properly support identification.

28.34. Mr Luckraft highlighted one particular aspect of practice within SCRO that was a matter of particular concern to him and that was "a culture of being able to 'push' a comparison to 'tease' 16 points in agreement."[35] He observed:

> "The problem with working to 16 points all the time means that your experience becomes limited to pushing and working to 16 points only. Therefore, when you come across a scene of crime mark of poor quality, there will be a tendency to attempt to push and make 16 points, even when there are considerably less points contained within the mark. In my opinion, I believe this type of practice could explain how and why a mistaken identification could occur."[36]

28.35. Evett and Williams, reporting in 1989, found 'teasing out' of points to be prevalent in the UK as a consequence of adherence to the 16-point standard.[37] As they emphasised, it has to be recalled that fingerprint examiners would be personally convinced to the level of 100% certainty probably on substantially fewer than 16 points (perhaps eight) and in that situation it would be understandable if there was a sub-conscious recourse to reverse reasoning, using the known print to guide the interpretation of the mark to complete the 16 points required by the legal standard.[38] Significantly, the assessment of Evett and Williams was that this practice posed no particular risk because they were assuming that the examiner was correctly satisfied on the lesser number of points that gave rise to the 'inner conviction' of identity. Mr Zeelenberg's evidence was that experience since Evett and Williams, particularly with the Mayfield case in the United States, had shown that teasing out could be a source of error.[39] A tendency to push to 16 points would

32 Mr Luckraft 20 October pages 13, 44ff
33 FI_0113 paras 1-12 Inquiry Witness Statement of Mr Luckraft
34 PS_0147
35 FI_0113 para 9 Inquiry Witness Statement of Mr Luckraft; see chapter 23 para 49
36 FI_0113 para 10 Inquiry Witness Statement of Mr Luckraft
37 CO_1375. See chapter 23 para 48
38 CO_1375 pages 26-27
39 Mr Zeelenberg 7 October pages 59-63

be one explanation for SCRO being able to report an identification where other bureaux would not; and it would be a particular risk factor in relation to complex marks, such as Y7 and QI2 Ross, where the existence of a lesser number of matching points to form a correct 'inner conviction' was itself open to debate.

28.36. There was confirmatory evidence of a working environment within SCRO to 'push' to find 16 points and the conclusion that that will have contributed to the erroneous identifications here can be supported by the candid evidence of Mr Graham. He agreed with SCRO that Y7 was the mark of Ms McKie but he reached that conclusion perhaps on as few as seven points: "According to Mr Graham, where SCRO went wrong was in then attempting to find 16 points in common."[40]

28.37. Ms McBride denied 'teasing' but it is significant to observe that she would reach a conclusion before she counted the points and, if she did not find 16 points, she would double check:

> "...it is not that I am looking to tease out points as one of the phrases that have been used or whatever, it is just a case of being certain and making sure before you pass it on and say, 'I am not able to get 16'."[41]

Double checking could include looking at other impressions of the print on different ten-print forms "to see if it was possible [to get 16 points] but if it is not possible, it is not possible." The risk is that, already being certain of identity, any examiner carrying out a double check could interpret ambiguous detail, such as SCRO points 4-6 in Y7,[42] in a manner consistent with completing the list of 16.

An inappropriate hierarchical philosophy

28.38. The Inquiry heard evidence of a peer pressure within SCRO attributable to an inappropriate hierarchical philosophy within the bureau and that is summarised in chapter 23. That examiners could be immune to both peer pressure and the sub-conscious influence of a culture of a 'push' to 16 points can be clearly exemplified by Mr Geddes who adhered to his own opinion that he could see only ten points in sequence and agreement in Y7 despite the demonstration by Mr MacPherson of the 16 points that he observed. The consequential issue is why the application of a rigorous verification process did not stop the identification at that stage.

28.39. There are two answers to that.

28.40. The first is that practice within SCRO at that time permitted an examiner like Mr Geddes, who agreed that there was an identity between mark and print but could not find 16 matching characteristics, to be effectively by-passed in favour of verification by other examiners.

28.41. The second answer is more subtle. The by-passing of Mr Geddes was a lost opportunity for each of the four examiners Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna properly to reflect on their evaluation of the mark by giving due consideration to the view of Mr Geddes. In part at least, the failure to take advantage of that opportunity may itself have been attributable to the ethos

40 CO_0003 pdf page 18 and Mr Graham 9 July pages 61, 75-81
41 Ms McBride 6 November pages 135-141 at page 139
42 See chapter 25 paras 45-76 and 88-89

within SCRO. Mr Luckraft reported a perception that more years' experience equalled higher skill level[43] and that attitude was displayed by Mr Stewart both in his oral evidence to the Inquiry[44] and in his witness statement, this quotation coming from the latter:

> "Likewise the difference may simply reflect fingerprint experts' own skills. Different fingerprint experts have different tolerances to different marks. As an example a more experienced individual will normally be able to work better with more difficult marks. Some experts could have a particular aptitude for analysing certain types of marks, for example marks made in blood."[45]

28.42. The belief was not only that SCRO could identify marks that other bureaux could not, but also within SCRO itself there was a belief that the interpretative skills of an examiner grew with experience and hence Mr MacPherson's certainty in his own conclusion is unlikely to have been diminished by the failure of the more junior Mr Geddes to agree his entire list of 16 points. The same may also be said of the other three signatories, each of whom was senior to Mr Geddes.

28.43. The application of different tolerances, whether as a product of years of experience or personal aptitude, leads to the next risk factor.

Tolerances

28.44. Fingerprint examiners are working with impressions (both in the case of known prints and crime scene marks) that may be more or less partial reproductions of the fingerprint or fingerprints and even such detail as is reproduced may be distorted due to the manner of deposition or development. Their work requires them to make assumptions in order to compensate for the incomplete and distorted state of the materials. If the detail is clear the compensating assumptions will be narrowly confined with the result that a more exacting correspondence in detail will be required before an examiner will declare an identification. Where, as in a complex mark like Y7 or QI2, the detail reproduced in the mark lacks clarity there is scope for the examiner to apply wider tolerances in the assumptions that he makes. This carries the risk of an adventitious match because the width of the tolerances may in fact be accommodating genuine points of difference.

28.45. Before reaching a conclusion as to identity of a complex mark an examiner must carefully evaluate the tolerances applied. An organisation which takes particular pride in working with marks which other organisations might not be 'able' to use risks failing properly to evaluate the tolerances that have been applied and there is the added danger that this factor will be compounded by 100% certainty. If an examiner has reached an inner conviction of identity based on wide tolerances applied to a limited number of points, there is the risk that he may apply ever expanding tolerances in the search for the remaining points to complete his list of 16.

28.46. One outward sign of the application of inappropriately wide tolerances by SCRO is the conflicting evidence by Mr MacPherson and Mr Mackenzie regarding SCRO points 11 and 12 in QI2 Ross. Both cited these as points in sequence and agreement but to Mr MacPherson these were a ridge ending (SCRO 11) and a

43 FI_0113 para 6 Inquiry Witness Statement of Mr Luckraft
44 See quotation in chapter 23 at para 46
45 FI_0036 para 121 Inquiry Witness Statement of Mr Stewart

bifurcation (SCRO 12) producing the shape of a bell, whereas Mr Mackenzie saw two bifurcations meeting as a lake.[46] These mutually exclusive interpretations are indicative of the application of wide tolerances not only to the mark but also to the corresponding section of the print of Miss Ross. Mr Zeelenberg's slide 162[47] shows the upper ridge of the bifurcation SCRO 12 in the mark coming into contact with a vertical swipe and it is difficult to confirm the flow of the ridge thereafter in the mark, leaving scope for an inference of either a ridge ending (Mr MacPherson) or a bifurcation (Mr Mackenzie) at the intersection. Turning to the print, there is the appearance of a connection between the two opposing ridges at SCRO 11 forming the bifurcation as seen by Mr Mackenzie. Mr MacPherson's interpretation of the section of ridge that appears to form that connection was that it was no more than an incipient (a third level detail) and hence, for him, the print properly interpreted showed a ridge ending.[48] The result is that, in order to complete a matching *bifurcation*, one of them (Mr Mackenzie) has had to infer the *presence* of a section of ridge detail in the *mark* where such detail was not readily observable; while the other (Mr MacPherson) has had to *discount*, as an incipient, detail that can be seen in the *print* in order to conclude that there are matching *ridge endings*. The same can be said of SCRO points 1, 10 and 16 in QI2 Ross.[49]

28.47. As for ever expanding tolerances being applied, Y7 serves as an example. In the lower part of the mark (from SCRO 1-9) there is a series of characteristics the majority of which are readily observable and do bear some degree of similarity depending on the degree of tolerance applied but, having concluded that those details do match, the SCRO officers must have applied wider tolerances to detail such as SCRO 10-13 because the ridge characteristics in those locations are not readily observable.

28.48. The fundamental problem with the application of wider tolerances lies in a paradox identified in a passage in the report by the INTERPOL European Expert Group on Fingerprint Identification 'Method for Fingerprint Identification'[50]

> "A difference in appearance between compared fingerprints (or details of them) that is [attributable][51] to normal variations with printing can be tolerated. Tolerances should be applied consistently and honestly. *Experts should be aware of the paradox that one may be inclined to accept more differences in bad prints under the umbrella of distortion than one would accept in better quality prints.* Distortion not only limits the perception of the similar but also of the dissimilar. The pitfall is that a premature assumption of donorship leads to transplantation of data from the 'original' into the blur of the latent. It is circular reasoning like: this print comes from this donor, prints are unique, thus all data must be the same and subsequently all differences are not real. With identifications proved to be mistaken, it became clear that the involved experts had ignored the differences. Evaluation of those comparisons often contains a long list of excuses why the print does not look like how it should,

46 See chapter 26 para 21ff
47 AZ_0061
48 Mr MacPherson 29 October pages 97-102
49 See chapter 26 para 30ff
50 INTERPOL (2000) Method for Fingerprint Identification para 12 and INTERPOL (2004) Method for Fingerprint Identification Part II para 8.10
51 The text says "contributed".

> disguised as demonstration of the skill and experience of the expert. The rule is therefore that: 'Tolerances should not vary dependent on the quality of the impression'." (emphasis added)

28.49. Recognition that the application of wide tolerances can lead to potentially exclusionary differences being treated as possible points of similarity ought to result in greater experience counselling greater caution with marks that lack clarity. However, that is likely to have weighed less with practitioners who had a belief in a personal and collective ability to identify marks that others of less experience could not.

Reverse reasoning

28.50. To some extent this is an alternative perspective on the application of undue tolerances. The application of wide tolerances can be associated with reverse reasoning because both can be responses to lack of clarity in the mark: an examiner being able (because of the application of wide tolerances) to interpret poor detail in the mark in a manner consistent with the clearer detail in the print (reverse reasoning).

28.51. 'Teasing out' can be a form of reverse reasoning and that was the descriptive term applied by Mr Zeelenberg.

28.52. In QI2 Ross he referred to SCRO points 4 and 11.[52] SCRO point 11 has already been mentioned in the context of the tolerances that were applied and because the detail is ambiguous in each of mark and print it may be open to question whether the interpretation of the print has guided the interpretation of the mark or vice versa.

28.53. Y7 may provide clearer examples in SCRO points 10-13.[53] In the print these appear as a lake above the core (points 10 and 11) and an adjacent incipient ridge or island (points 12 and 13). There is little corresponding detail in the mark and it is difficult to assume that these four characteristics would have been picked out in an unguided initial analysis of the mark.

Repeated viewing

28.54. A more subtle form of reverse reasoning may also have been present in the case of QI2 Ross.

28.55. In the murder investigation it was a logical and necessary step to consider first which of the many marks at the crime scene were those of Miss Ross, so that those marks could be eliminated from the investigation. It followed that Mr MacPherson had to view Miss Ross's prints repeatedly on the many occasions he required to compare them with marks found at the crime scene. In that situation he would come to "memorise" the prints.[54]

28.56. Mr Stewart also gave evidence to the effect that in investigations where prints or marks were viewed repeatedly, it was possible for examiners to memorise where

52 Mr Zeelenberg 7 October pages 100-102, 104-105 and AZ_0061 slides 158 and 162
53 Mr Zeelenberg 7 October pages 45-47 and AZ_0061 slides 59 and 60
54 Mr MacPherson 27 October pages 53, 76-79 and FI_0055 para 118 Inquiry Witness Statement of Mr MacPherson

particular clusters of features were: "It gets to the stage that if you are working on some of these major inquiries for the lengthy periods they run you are effectively picking up the form, it is almost an aide-memoire to you. The same by looking at the marks, you get to see the marks so often you already can remember where the cluster is you are going to start looking at the target group, whatever you want to call it."[55]

28.57. Mr MacPherson did not see that there was any danger that the visual memory of the prints would come to influence him. There must, however, be a risk that the process of reasoning from mark to print, which is intended to prevent examiners from forming a view about the mark by reference to the known print, will be undermined in a situation where an examiner has formed a strong visual familiarity with and memory of the print.

Target areas

28.58. A proper analysis, comparison and evaluation ought to consider mark and print as a whole. Mr MacPherson, Mr Stewart and Mr McKenna all worked with target groups, and the evidence of Mr Chamberlain and Mr Grigg supports Mr McKenna's statement that this is a natural approach to adopt in a comparison. Still, Mr Chamberlain's and Mr Grigg's evidence emphasised the need for a comprehensive analysis of the mark before the commencement of a comparison based on a selected target group followed by a proper evaluation before a conclusion is reached. The risk associated with a conclusion based on target areas is that the comparison may be confined to that area and will not take into account a proper consideration of the remainder of the detail in mark and print. Alternatively, a preliminary conclusion formed by reference to a target area could give rise to the risk of reverse reasoning when comparing the remaining detail.

28.59. Reverse reasoning has been discussed. As for the risk that the conclusion will be based on an incomplete analysis, there is the fact that all four of the SCRO officers discounted the top part of Y7. To take Mr MacPherson as an example, when discussing the significance of unexplained differences, he drew a distinction between differences that were in his target area and differences lying elsewhere. He said that he could still reach a conclusion of identity if there were unexplained differences *outside* his target area but not if there was one *in* that area[56] and that attitude in part explains why he attached no significance to the "one or two characteristics which were not in alignment" in the top part of the mark.[57] There is no proper justification for discriminating between an arbitrarily chosen target area and the remainder of the mark when it comes to the proper evaluation of a potentially exclusionary difference.

28.60. Concentration on a target area might be thought to have some basis in the basic premise that the pattern of fingerprints is unique not just in the fingerprint as a whole but also to small areas.[58] That is a premise which, if correct, applies to the pattern in the skin. Care has to be taken when transposing that premise to

55 Mr Stewart 5 November pages 57-58
56 Mr MacPherson 27 October page 135
57 Mr MacPherson 27 October pages 139-140
58 Ashbaugh, D.R. Quantitative-Qualitative Friction Ridge Analysis, Boca Raton: CRC Press, 1999 pages 85 and 91-92; see chapter 2 para 9

an impression, whether a mark or a print.[59] That premise cannot justify a failure to analyse the whole mark or to fail to evaluate all the points observed during comparison of mark and print. Apart from anything else, the presence of an unexplained difference in one part of a mark ought to cause an examiner to reconsider whether the characteristics that are thought to be similar in another part of the mark truly are in agreement.[60] Taking Y7 as an example, the differences in the upper section of the mark ought to have led the SCRO examiners to consider whether it was appropriate to construe ambiguous detail such as SCRO points 4-6 as matching characteristics.[61]

Circular reasoning on points of difference where 16 points found and generalised thinking

28.61. Given the propensity for the precise appearance of ridges to alter depending on the manner of deposition even in prints taken under controlled circumstances, it is not realistic to expect that the detail in two prints made by the same individual will coincide exactly. In fingerprint comparison allowance has to be made for inevitable variations in detail and this leads to a distinction between what Professor Champod called 'within source' variations (i.e. the type of variation that can occur when the same individual deposits his print) and 'between source' variations (i.e. any difference indicative of the fact that the prints come from two different individuals). The presence of some differences between mark and print would not exclude a conclusion of identity if the difference can be *explained* as a within source variation but the presence of an *unexplained* difference ought to exclude that conclusion.

28.62. The skill of the fingerprint examiner is to ascertain whether any difference is capable of reliable explanation.

28.63. When the 16-point standard prevailed there was a perception that the existence of such a number of points in sequence and agreement itself was sufficient to prove identity beyond any reasonable doubt, and that led to circular reasoning that if such a number of common points was present a difference could be discounted because it could be assumed to be capable of explanation, even if the particular explanation was not immediately apparent.

28.64. Mr MacPherson subscribed to that view: if there were 16 points in sequence and agreement it would be impossible to have an unexplained difference.[62] That was a view shared by others outside SCRO including Mr Graham[63] and Mr Leadbetter[64] and it was reflected in contemporaneous literature. Mr MacPherson referred in his evidence to a 1970 handbook in which proof of identity was taken if 16 points were found in sequence and agreement and the formulation of the 16-point rule in that text made no reference to unexplained differences.[65] The same is true of the Crown Office Expert Evidence Manual.[66]

59 See chapter 35 para 80ff
60 Mrs Tierney 12 November pages 69-70; see chapter 35 para 83
61 Mr Grigg 29 September page 96; see chapter 25 para 165
62 Mr MacPherson 27 October pages 132-134
63 Mr Graham 9 July pages 61-63
64 Mr Leadbetter 23 October page 52
65 Mr MacPherson 29 October pages 1-8; see, more generally, chapter 35 para 75ff
66 CO_4342 section 2.4

28.65. The application of such reasoning runs the risk of discounting a true between source variation such as the Rosetta in Y7. At a more fundamental level it also assumes that the examiner has correctly identified 16 points that are truly in sequence and agreement. At the evaluation stage consideration ought to be given to all of the detail in mark and print before a conclusion is reached. If tolerances have to be applied to accommodate differences in detail such as those in the formation of SCRO points 4-6 in Y7, does the application of a similar degree of tolerance account for other observed differences, such as the Rosetta? If not, is it reliable to apply even that degree of tolerance to SCRO 4-6 or is the more correct conclusion that those points cannot be taken to be in sequence and agreement? That was the process of reasoning of Mr Grigg in relation to Y7.[67] By assuming an explanation for differences from the mere fact that 16 points are believed to be in sequence and agreement, examiners deprived themselves of the opportunity properly to evaluate the tolerances being applied in deeming the 16 to be truly in agreement.

28.66. Not all of the SCRO examiners subscribed to that specific circular reasoning but there was a related factor also in play. SCRO fingerprint officers were trained to talk in generalities[68] with explanations for movement and the like passed on by word of mouth from mentor to student.[69] The inability of SCRO officers to advance a satisfactory reason for discounting the top part of Y7 was remarked upon by Lord Johnston in his charge to the jury in *HMA v McKie*.[70] Merely to say that there has been movement of the top part of the mark Y7 relative to the lower part is not sufficient to explain the points of difference in the upper part. It is necessary to consider what particular pattern of movement may have given rise to the distribution of characteristics in the mark and to proceed from there to ask how likely it is that that pattern of movement may have occurred. Take, for example, Mr Mackenzie's assumed distribution of matching characteristics in figure 13 in chapter 25:

(i) What pattern of movement of the finger could have produced such a 'leapfrogging' redistribution of characteristics?

(ii) How likely is it that such a pattern of movement could have occurred?

(iii) What physical evidence (such as smearing and criss-crossing of ridges) might one expect to see in the mark had that pattern of movement occurred?

(iv) Is any of that physical evidence present in the mark?

28.67. Thinking in terms of generalities deprived the SCRO examiners of the opportunity properly to evaluate all of the detail in the mark and to consider properly whether they were overstepping the limits of tolerance in deeming Y7 and QI2 to match the prints of Ms McKie and Miss Ross.

67 See chapter 25 para 164ff
68 Mr Dunbar 6 October page 67
69 Mr Stewart 5 November page 168
70 CO_1465 pages 18-19

Slack working practices such as the inappropriate use of the comparator machine

28.68. Evidence relating to the use of the comparator machine in SCRO in 1997 is summarised in chapter 23. Two separate matters require consideration. The first is the practice whereby some examiners carried out comparisons on the comparator machine alone. The second relates to markings being left on screen.

28.69. That it was acceptable practice in SCRO to use the comparator to carry out comparisons is demonstrated by the choice of that apparatus by Mr Dunbar for the so-called 'blind testing' exercise. In that exercise he gave no opportunity to the participants to use linen glasses.[71]

28.70. Examiners sometimes carried out verifications using only the comparator machine. The evidence from the four signatories to the joint report is that they would have examined both Y7 and QI2 Ross under glass. Ms McBride's account of having done so is reinforced by the contemporaneous note on the reverse of the photograph of Y7, recording her use of glasses.[72] That evidence is accepted. Nonetheless, it may have been the case that Mr Bruce's verification of QI2 Ross was based solely on work on the comparator machine.[73] The problem is that the comparator screen may not display the complete mark and print and though an examiner can move the images to carry out a complete comparison the temptation may be to compare only the parts first displayed and not to look at the complete mark.

28.71. As for the practice of leaving markings on screen, the presence of such markings could be a form of 'peer pressure' (as Mr Luckraft characterised it)[74] in the sense of being a source of sub-conscious influence on later examiners, including those who removed the mark from the machine and examined it under glass. That practice potentially compromised the full independence of the verification process as the report on the misidentification by Nottinghamshire Police in the Lee case stated.[75]

28.72. That practice is of no relevance to Ms McBride and Mr McKenna's conclusions on QI2 because neither was among the initial verifiers of that mark. It may, though, have had some impact on the verifiers, including Mr Stewart, who admitted that, if there were markings on screen, he would take a quick look at them to get an indication of where points had been found before removing the material from the comparator machine and carrying out his examination at his desk.[76] As for the possibility that there were markings there to be seen, allowance has to be made for the fact that Mr MacPherson said that he tended to leave two or three characteristics on screen to give others a start, which suggests that at least some markings for QI2 would have been there to be seen.

71 Mr Bruce 9 July page 150
72 PS_0002h
73 See chapter 5 para 76ff
74 FI_0113 para 12 Inquiry Witness Statement of Mr Luckraft
75 MP_0007 pdf p 84; and MP_0006 and Mr Pugh 24 November page 51ff correcting FI_0082 para 49 Inquiry Witness Statement of Mr Sheppard and Mr Sheppard on 7 July page 182ff; see chapter 38 para 54
76 Mr Stewart 5 November pages 43-44, 173-174, c.f. FI_0036 para 174 Inquiry Witness Statement of Mr Stewart

28.73. The same inferences arise in relation to Y7 where Mr MacPherson was again the first examiner and there is the possibility that Mr McKenna and Mr Stewart (but probably not Ms McBride) would have seen his markings in relation to that mark.

A failure to address the distinction between eliminations and identifications

28.74. The distinction between an 'elimination' and an 'identification' is explained in chapter 32.[77]

28.75. SCRO, like English bureaux,[78] could make an 'elimination' without finding 16 points in sequence and agreement. There were variations among the witnesses as to the lower limit necessary for an 'elimination', ranging from 8-12 points, but the more pertinent fact is that, from the perspective of fingerprint examiners, this did not imply the application of a lower standard because they regarded both an 'elimination' and an 'identification' as a certainty: see Evett and Williams.[79] The distinction between the two was of relevance to lawyers, not fingerprint practitioners.

28.76. In February 1997, when Y7 was initially studied at SCRO, Ms McKie fell into the category of those who could be 'eliminated': she was a police officer engaged in the murder investigation. While Mr MacPherson required examiners involved in the ordinary process of examination of marks from the house to work to the 16-point standard, it is clear that, with the exception of Mr Halliday, those involved at the stage of the exceptional additional checks on Y7 (i.e. Mr Mackenzie, Mr Dunbar and the examiners involved in the 'blind test') considered it only from the standpoint of an 'elimination'.[80] The Inquiry has established that the examiners were equally divided as between an 'identification' and an 'elimination'. Five found the 16 points necessary for an 'identification' (the four who signed the reports plus Mr Halliday) and the same number (Mr Geddes, Mr Mackenzie, Mr Dunbar, Mr Bruce and Mr Foley) verified an 'elimination' on a lesser number of points as low as eight.[81]

28.77. The problem is that an individual may be a candidate for 'elimination' one day as a non-suspect and turn out later to require consideration for proof of identity to the full legal standard. That was critical in the case of Ms McKie. Application of different standards can lead to confusion, particularly if (as happened here), there is no record that some have only 'eliminated' on less than 16 points.

28.78. Ms Climie and Mrs Greaves both proceeded under the misapprehension that there was unanimity among the examiners that there were 16 points in sequence and agreement.[82]

28.79. Within SCRO itself no single individual was aware of the full detail of the various comparisons;[83] and that this gave rise to misapprehension on the part of Ms McBride and Mr Stewart can be seen from the evidence that they gave at the trial in *HMA v McKie.* In the course of cross-examination Ms McBride made the

77 Paras 30-32
78 Mr Sheppard 7 July pages 176-178
79 CO_1375 pdf page 30
80 See chapter 7
81 See chapter 7 para 192
82 See chapter 10 para 101ff
83 See chapter 7 para 194

claim that the system of fingerprinting was infallible[84] and that was explored in this question and answer:

> "Have I got that right; it is infallible? - So far, yes. I would say the system is infallible. One person can make a mistake but four people and the quality assurance officer — it is not possible…"[85]

"So far" refers to the fact that there had been to that date no successful challenge to a SCRO fingerprint identification but the point that is relevant for present purposes is that Ms McBride believed that the conclusion reached by the four signatories to the joint reports had been supported by the quality assurance officer, Mr Dunbar. Earlier in the trial Mr Stewart had testified that the mark had been checked not only by the quality assurance officer but also by the deputy head of bureau, Mr Mackenzie.[86] There is no reason to think that Ms McBride and Mr Stewart knew then what the Inquiry has since established, which is that at the date of the trial Mr Mackenzie and Mr Dunbar concurred only to the extent of agreeing an 'elimination' on less than 16 points.

28.80. Mr Graham (who eliminated the mark to Ms McKie possibly on as few as seven common points) believed that SCRO made a mistake in proposing that an identification could be established to the 16-point standard.[87] The fact that a number of officers, including the most senior fingerprint examiner in the bureau and the quality assurance officer, had not found at that stage 16 points in agreement, ought to have presented an opportunity to SCRO itself to reflect on the robustness of the opinion that proof of identity could be established to the full legal standard. Disclosure of that fact to COPFS would also have given the prosecution the opportunity to reflect on that matter. That neither was afforded that opportunity is attributable to the lack of proper recording within SCRO and a consequent failure to address the implications of the distinction between an 'elimination' and an 'identification'. The fuller information available to the Inquiry supports the conclusion that the system was far from infallible.

Contextual information from the police

28.81. The police provided contextual information to the SCRO fingerprint examiners. This is plain from the note[88] recovered from the case envelope,[89] which read: "They are hopeful about the tin the money was in. There is an area the same size as the tin, clearly seen with dust round it. Tin recovered at accused's." This was a note taken by Mr Stewart.[90]

28.82. Mr MacNeil's note on Form 13B when sending the batch of marks, which included QI2, from the Identification Bureau to SCRO said "Ident Required for Deceased".[91] None of the fingerprint examiners who gave evidence looked on this as an instruction to provide a positive identification of any or all of the marks as deriving

84 SG_0528 page 28
85 SG_0528 page 30
86 SG_0526 page 86
87 Mr Graham 9 July pages 80-81 and see also pages 58-62 and 75-81
88 DB_0256
89 DB_0253
90 Mr Stewart 5 November pages 53-54,159-166
91 DB_0251 pdf page 33

from Miss Ross, but as an indication that the marks required to be compared against those of Miss Ross.[92]

28.83. The handwritten note about a visit to SCRO by Mr McAllister which referred to the Senior Investigating Officer as 'Stevie Heath' gives the impression of a close and relatively informal working relationship between police and the fingerprint bureau. Mr Heath's evidence was that he did not know the fingerprint examiners well.[93] However Mr Stewart's evidence was that the level of personal relationship with an SIO "sometimes decided the level of information and the quantity of information you got."[94] Mr Stewart spoke to having worked on many occasions with Mr Heath.[95]

28.84. Mr McAllister spoke about what he saw as the positive need to keep the fingerprint bureau informed and make them feel as if they were part of a team and he indicated also that this was a method of working promoted under Mr Heath's direction.

28.85. There is some academic research tending to show that contextual information may sub-consciously influence the conclusions of fingerprint examiners, although there is also research which has reached the opposite conclusion.[96] There may be risks in the inclusion of fingerprint examiners in the police 'team' in the way described by Mr McAllister. Their proper role is to provide their conclusions in relation to the identity of the donor of marks. Work can be prioritised without the provision of detailed reasons as to why the police consider a particular mark to be of importance. In relation to QI2, there was no need for the fingerprint examiners to be made aware of the significance of the tin from the point of view of the police.

28.86. Mr MacPherson could not recall seeing the handwritten note from Mr Stewart. He could not say with any certainty whether he had seen the Form 13B. His evidence was, however, that he was aware of the background to mark QI2 at the time he examined it.[97] His knowledge of what was believed to be the significance of the tin in the context of the police investigation is a factor which may, sub-consciously, have influenced him and contributed to the initial misidentification by him of mark QI2 Ross.

Conclusion

28.87. There is no evidence that the SCRO officers deviated from their normal practices and there is no suggestion that these had led them into error in the past. Nonetheless, there was a number of risk factors present in those practices and in

92 FI_0056 para 50 Inquiry Witness Statement (Supp.) of Mr MacPherson, FI_0040 paras 13-15 Inquiry Witness Statement of Ms McBride, Mr Stewart 5 November pages 51-52, Mr Geddes 26 June pages 80-81 and FI_0054 paras 54–55 Inquiry Witness Statement of Mr McKenna

93 Mr Heath 9 June page 44

94 Mr Stewart 5 November page 55

95 Mr Stewart 5 November pages 55-56

96 I. Dror and D. Charlton, *Why Experts Make Errors* (2006) 56 Journal of Forensic Identifications 600-616; I.Dror and others, *Contextual information renders experts vulnerable to making erroneous identifications* Forensic Science International 156 (2006) 74-78; but see also Hall, Player, *Will the introduction of an emotional context affect fingerprint analysis and decision-making?* Forensic Science International 181 (2008) 36-39

97 Mr MacPherson 27 October pages 75-76 and FI_0055 para 51 Inquiry Witness Statement of Mr MacPherson

the case of Y7 and QI2 Ross these crystallised into error. An excess of confidence in the skill and ability to work with complicated marks within the bureau is likely to have been the main reason why they fell into error rather than any lack of competence, the principal underlying methodological failure being that the SCRO officers concentrated on only part of the mark and applied an inappropriate degree of tolerance in the comparison of marks that were of poor quality.

Precedent

28.88. In the second of his two reports prepared prior to the trial in *HMA v McKie*, Mr Wertheim explained that in beginning a comparison of mark and print a 'target group' should be selected and for Y7 he chose a group of five points. In his report he used the numbering in Production 189 but the corresponding numbers as used in the comparative exercise were SCRO points 3-6 and 9. He wrote that though these five points did not match exactly they could be considered within tolerance.[98] In their earliest reports on Y7 the National Training Centre at Durham conceded only three points in Y7 as bearing any similarity to characteristics in Ms McKie's left thumb print;[99] those being SCRO points 1, 3 and 4. However, in the final report prepared for Mr Gilchrist's investigation they accepted that five points broadly coincided and, again converting to the numbering used in the comparative exercise, they were SCRO points 3-6 and 15.[100]

28.89. There is, therefore, some support for the view that focusing on a target group could suggest some similarity between Y7 and the left thumbprint of Ms McKie. Of course, neither Mr Wertheim nor the experts at Durham rested there because they tested the superficial similarity between the target group points in the light of the remaining detail and concluded that the two did not match.

28.90. In retrospect it is worth noting the contemporaneous observations made by Mr Wertheim as noted in the precognition that the Crown took from him when he attended Glasgow High Court on 5 May 1999:

> "Inevitably as print distortion increases the clarity of the ridge characteristics decrease. It is this fact that means that an element of tolerance [or] latitude has to be brought in by the examiner when making his comparison. It is here I think that things went wrong.
>
> I could find maybe 5 so called features or characteristics from the 16 highlighted by Scottish fingerprint examiners. Even then these were on the outer range of tolerance making due allowance for distortion or pressure variations in the ridge characteristics.
>
> It seems to me that the problem here was in the methodology adopted; having found a comparison of this sort I would then look elsewhere in the characteristic of the print to see if I could match the conclusion or not. In making my examination I did not confine myself to the box area as defined by the Scottish print examiners. I examined the entire latent and then made my own comparison. I noted between Productions 152 and 189 that there were different points charted in each of the two exercises undertaken by

98 DB_0168 para 15
99 CO_1065 para 4.3
100 CO_2003 para 2.18

the Scottish Police but even then I still could not get sufficient common characteristics to share their conclusion as to identity.

My feeling is that a mind set developed once a target group of common characteristics had been found and from there the examiners were looking for features that would justify or back-up 5 target points rather than looking at the remainder of the print with a fresh eye.

Once the target group had been found in both the locus print and the comparison then greater care has to be taken. It is then essential to work off the latent print to find additional characteristics not to work off the known print seeking confirmation from the latent print.

I do not know how the Scottish fingerprint examiners approach this task; the problem is that when the 5 target characteristics have been identified at the outer range of tolerance, one then looks to other common characteristics but actually extend the limits of one's tolerance. Thus a false conclusion is reached. In a sense once the target points have been established, these were on the outer range of tolerance, the tolerances become even more elastic in order to achieve a result. There is nothing wilful or deliberate in this, it is simply human nature."[101]

28.91. This correctly points to the error being attributable to the methodology applied, rather than any wilful or deliberate misconduct. It also encapsulates a number of the risk factors discussed, including the focus on a target group, the failure to look at the mark as a whole, reverse reasoning being applied to back up the five target points, working at the outer limits of tolerance even in relation to the five target points and applying "even more elastic" tolerances in order to achieve the result of 16 points in sequence and agreement.

28.92. Reference can also be made to the two reports by the INTERPOL European Expert Group on Fingerprint Identification entitled 'Method for Fingerprint Identification'.[102] Mr Zeelenberg was chairman of the group when the first report was written. Two passages in the General Statements section of the first report are pertinent:

"4. Environment

(i) Mistaken identifications have some common causes. The (latent) fingerprints being examined were of bad quality, the expert was biased and there was pressure involved. The expert(s) was (were) sure to be right and could most of the time not be convinced of the opposite. Independent experts investigating the print later judged most of the times the prints to show insufficient detail for identification or even for comparison. Real verification did not take place.

(ii) False identifications are human errors but errors are human. If man were able to judge independently and free of bias, mistakes would be virtually impossible. The fingerprint expert is working in a 'field of force' that generates pressure towards results. Open pressure but

101 CO_0024 pages 7-8
102 INTERPOL (2000) Method for Fingerprint Identification and INTERPOL (2004) Method for Fingerprint Identification Part II

mostly hidden, pressure from outside but also from the inside. The need for result can be considerable in high profile cases. The longing for result leads to guided perception and biased evaluation. More subtle is the mechanism of subconsciously deciding while comparing. If one has found 6 points in agreement and gets the 'warm feeling', the perception and validation are guided often leading to upgrading information, ignoring differences and stretching tolerances.

(iii) Everything should be undertaken to keep the pressure off the investigating process. It is the responsibility of the management to create an open and sound culture in the first place. A sound culture starts with proper goals for the organisation. The goals of the forensic specialist is not generating results but scientifically sound conclusions regardless who 'profits' from them.

(iv) The organisation should not be involved in the judicial system as a party and express verdicts in terms of winning or losing.

5. Hierarchy

1. Hierarchy (rank) in scientific decision-making is considered to be inappropriate. The dangers of such a process, which must be recognised and overcome if a hierarchical system is used, are that:

a. The 'junior' tunes his/her opinion to that of the 'senior';

b. The culture of the longer serving expert 'sees more';

c. The pressure on the junior to please the senior."

28.93. The factors present in relation to Y7 and QI2 Ross that find precedent in that report are: (1) the fact that the marks were of poor quality (i.e. complex marks); (2) the experts felt themselves "sure to be right" (i.e. 100% certainty and an over-confidence in the ability to identify marks that others could not); (3) experts sub-consciously deciding while comparing (Mr MacPherson's inner conviction or Ms McBride's personal point of certainty), leading to guided interpretation (or reverse reasoning) that results in ignoring differences and "stretching tolerances"; and (4) a culture in which the views of more junior examiners were not given due weight because a longer serving officer "sees more".

Contextual bias and impropriety

28.94. The INTERPOL report does mention bias. In chapter 5 the background material available to the SCRO officers at the time of the examination of the marks has been explained and some of the key elements have been mentioned in this chapter. Bias in this context is a reference only to sub-conscious influences that may come to bear on an expert. It does not refer to actual bias or any impropriety.

28.95. There are two positive indications in support of that conclusion. The first is that I am satisfied that the SCRO officers had no motive to harm Ms McKie. Nothing in the background information supplied by the police led either the police or SCRO to suspect Ms McKie as the maker of the mark and, far from assisting the police,

even at the time of the investigation the misidentification of Y7 complicated the murder investigation and placed considerable strains on individual police officers including Mr Heath and Mr Shields. As for QI2 Ross, the critical fact is that Crown Counsel had authorised the full committal of Mr Asbury on the charge of murder on 30 January 1997, the day before that print was identified.[103] The assessment of Crown Counsel was that there was a sufficiency of evidence to place Mr Asbury on trial even before that print was identified and I am satisfied that there is no basis for concluding that QI2 Ross had to be identified in order to make a case against Mr Asbury.

Other allegations of impropriety

28.96. In the report dated 27 September 2000, fingerprint experts at the National Training Centre, including Mr Sheppard and Mr Grigg, reported that they had "grave doubts" that the examinations of Y7 were carried out totally independently and advised that "without adequate explanation there appears to be collective manipulation of evidence and collective collusion" to identify Ms McKie erroneously.[104]

28.97. The factors that led to that opinion coincided in large measure with the observations that Mr Wertheim made to Mr Gilchrist.[105]

28.98. These matters were raised with Mr Sheppard in his evidence to the Inquiry[106] and setting aside for the moment the question of the degree to which there was a misidentification of the marks, he accepted that a fuller understanding of Scottish practice could provide possible explanations for the specific considerations that led him to suspect collusion.

(i) In England the practice was for each expert to prepare a separate report but the fact that four SCRO officers prepared joint reports and joint exhibits was sanctioned by statute: section 280 of the Criminal Procedure (Scotland) Act 1995.

(ii) The SCRO experts did not rely on the charted enlargements as evidence of their own individual comparisons but merely as illustrations to show the jury generally the method by which officers reached a conclusion on identity.

(iii) The charted enlargements were of poor quality but that was because the computer on which they were prepared itself produced images of poor quality.

(iv) Images were "cropped", that is to say showed only the lower section of Y7 where similarities were said to have been found and not the upper section where the NTC observed differences, because the computer was capable of reproducing only a small area of the mark.

(v) The images in Productions 152 and 180 were identical because they were taken from the computer.

103 See chapter 5
104 CO_1065 pdf page 8; see chapter 17 para 4ff
105 CO_0003 page 29
106 Mr Sheppard 8 July pages 23-30

28.99. For completeness, Mr Wertheim also drew attention to the facts that (1) the production of a total of three sets of charted enlargements was unusual and (2) different inked prints were used in Production 189 and his observation was that progressively from production to production more dissimilarities were masked.[107] I am satisfied that there is adequate explanation for each of these matters. In particular, the fact that Production 189 used a different print for Ms McKie was because Crown Office instructed that a fresh comparison be carried out relative to the prints that were taken from her when she was arrested, which occurred at a date after Productions 152 and 180 were prepared. That in itself would have resulted in at least two sets of charted enlargements and I am satisfied that the third set were produced for the internal police disciplinary investigation led by Mr Wilson. The number of charted enlargements can be explained but, more significantly, Mr Wertheim, like Mr Sheppard, did not have the benefit of an understanding of the peculiar status of the charted enlargements in Scottish practice. Mr Wertheim understood them to be the 'best evidence' being advanced by the SCRO officers in support of their identification. In fact, as already noted, they were only copies produced for illustrative purposes and the Crown lodged separately the 'best evidence' which was (a) unmarked photographs of Y7, (b) the original fingerprint forms taken from Ms McKie, (c) photographic negatives of Y7 (Production 172) and (d) the door-frame with Y7 in its natural state (Label 102). Access to the original material, coupled with Mr Wertheim's ability to take his own prints from Ms McKie, enabled him successfully to challenge the SCRO identification. He was not impeded by the charted enlargements. On the contrary, it has to be recalled that SCRO was unique by this time in producing charted enlargements, and the fact that the enlargements were available and showed the total of 17 points on which the SCRO examiners relied to illustrate their opinion gave Mr Wertheim a secure basis on which to contest the basis for the identification. Without the lead afforded by the chartings it would have been much more difficult for Mr Findlay Q.C. to have been properly prepared to cross-examine the SCRO witnesses.

28.100. Having dealt with these specific matters, I return to the additional factor cited by the National Training Centre which was, in effect, incredulity that four fingerprint experts acting independently could have identified Y7 when the NTC experts found as few as three (latterly five) points bearing even a superficial similarity. That has already been addressed in the earlier section of this chapter. I am satisfied that the misidentifications are attributable to poor methodology. Among the pertinent considerations is that Mr Graham, instructed independently by the defence in *HMA v Asbury*, agreed the identifications of Y7 and QI2, and Mr Swann similarly agreed Y7 when instructed as an independent expert for Ms McKie. Mr Swann subsequently also confirmed the identification of QI2 Ross and I would add that Mr Berry and Mr Leadbetter also subsequently endorsed the identification of Y7. My conclusions on Y7 and QI2 Ross mean that I have not accepted the expert opinions of Mr Graham, Mr Swann, Mr Leadbetter and Mr Berry but the very fact that independent experts with their considerable experience could agree with SCRO satisfies me that there was no impropriety on the part of the SCRO officers.

107 CO_0003 pdf page 29

28.101. The final perspective to be addressed is the allegation that what began as a mistake, perhaps due to lack of attention to what was initially in the case of Y7 no more than an incidental elimination print, became over time impropriety as the SCRO officers failed to acknowledge the error in the identifications when presented with the contrary opinions of other experts including Mr Wertheim and Mr Zeelenberg. The premise is readily understandable but I have already highlighted that one of the by-products of experts being taught that they can have 100% certainty in their own conclusions is a significant natural impediment to a subsequent change of view. I am satisfied that the SCRO officers from whom I have heard evidence to this day genuinely, but mistakenly, continue to subscribe to the conclusions that they formed in 1997.

CHAPTER 29

FACTORS OF WIDER RELEVANCE FROM THE EVIDENCE OF MR MACKENZIE AND MR SWANN

Introduction

29.1. A conclusion which accepts the opinion of one expert witness in preference to that of another does not necessarily imply any criticism of the expert whose opinion is not preferred.

Mr Leadbetter

29.2. The Inquiry has no criticism to make of Mr Leadbetter. It is evident from paragraph 236 of chapter 25 that something went wrong in his ridge counts when plotting his charting of Y7. Mr Leadbetter was honestly and genuinely seeking to assist the Inquiry and the fact that his charting may have gone wrong is not a matter calling for any further comment.

Mr Graham

29.3. Some of the SCRO examiners who agreed that the mark was made by Ms McKie did so only at the level of an elimination (i.e. on less than 16 points), while others made an identification to the full 16-point legal standard. SCRO as a bureau failed properly to assess the implications of that division of opinion, particularly at the stage when the Crown was investigating a perjury charge against Ms McKie. Mr Graham's conclusion on Y7 was based on finding less than 16 points in sequence and agreement (possibly as low as seven points) and was therefore at the level of an *elimination*. Mr Graham recognised that that finding would not have supported a prosecution of Ms McKie, assuming that the Crown were to apply the legal standard of 16 points, and he was so acutely alert to this distinction that he was prepared to put on record with Mr Gilchrist (who it must be recalled was investigating a criminal complaint against SCRO examiners), and to reaffirm at the Inquiry hearing, that he believed the SCRO examiners had gone wrong in trying to find 16 points in agreement.[1] In these circumstances I have no criticism of Mr Graham.

Mr Berry

29.4. Mr Berry gave evidence to the Justice 1 Committee on 26 June 2006 supportive of the identification of Y7.[2] He has given statements to the Inquiry confirming his opinion that Y7 was correctly identified. One dated 29 January 2009 was made available to the Inquiry on 29 July 2011. Mr Berry also provided a witness statement dated 10 August 2011.[3] Reliance on the Daily Mail reproduction of Ms McKie's print was central to his opinion. Leaving aside the conflict between Mr Swann and Mr Berry as to whether that was a plain or a rolled impression,[4] the fact is that both relied on a newspaper copy of the fingerprint. That is dealt with below in the context of Mr Swann's evidence. No criticism is made of Mr Berry.

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1 See chapter 28 paragraph 80
2 Scottish Parliament Justice 1 Committee Official Report 26 June 2006 Col 3494
3 TS_0055; this includes (at pdf page 52ff) his statement dated 29 January 2009
4 See chapter 25 para 200

Mr Mackenzie and Mr Swann

29.5. I do not criticise Mr Mackenzie or Mr Swann but there are some issues raised by their evidence that are of more general relevance and that is now considered.

Mr Mackenzie

29.6. Mr Mackenzie's initial conclusion was only that Y7 could be *eliminated* as the left thumb print of Ms McKie.

- In his first examination of the mark on 17 February 1997 he saw only approximately ten or eleven points in sequence and agreement.[5]
- On 18 February 1997, having examined a new image of Y7 and a second print of the left thumb, his total rose to twelve or thirteen.[6]

Neither of those findings would have supported an *identification* to the then 16-point standard.

29.7. By the time of the presentation at Tulliallan in August 2000 Mr Mackenzie was reporting a total of 45 matching second and third level details, with 16 "traditional ridge characteristics"[7] in the lower segment, consistent with an *identification*.

29.8. This was a joint presentation with Mr Dunbar but the illustrated comparisons in the booklet 'McKie Case Revisited'[8] was based essentially on work carried out by Mr Mackenzie[9] and will, therefore, be attributed to him.

29.9. The initial findings of Mr Mackenzie were based on the lower part of Y7 only. Those initial conclusions were erroneous probably due to a combination of the factors already discussed in chapter 28. Those factors will have still been in play to some extent in the Tulliallan presentation but additional factors must account for the substantial increase in the number of matching points being reported.

29.10. Of the additional factors that may have influenced Mr Mackenzie, three can be highlighted.

29.11. The first is that the presentation was influenced by the insight afforded by courses on 'ridgeology' after February 1997[10] which enabled Mr Mackenzie to include third level detail (such as pores and incipient ridges) in his Tulliallan presentation and that accounts for six of the 22 points identified in the lower segment of the mark.[11] Care requires to be taken when relying on third level detail and given the lack of clarity in the mark such detail was in my view unreliable in this case.[12]

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5 FI_0046 para 124 Inquiry Witness Statement of Mr Mackenzie and Mr Mackenzie 30 September page 45
6 FI_0046 para 152 Inquiry Witness Statement of Mr Mackenzie and Mr Mackenzie 30 September pages 49, 96ff
7 CO_0050 pdf page 6
8 CO_0059 and SG_0282
9 FI_0053 para 192 Inquiry Witness Statement of Mr Dunbar (see also para 188)
10 Mr Mackenzie 30 September page 25ff
11 CO_0059 pdf page 14 (and SG_0282)
12 See chapter 25 para 152

29.12. The second influence is that Mr Mackenzie had access, after the trial, to an internet copy of a left thumb print of Ms McKie taken by Mr Wertheim.[13] Mr Mackenzie said that access to that copy enabled him to identify additional ridge detail in the mark because that print showed more detail above the fault line and to the top right than was shown in the police prints.[14] Fifteen of the points (points 31-45) shown in the presentation (a combination of second and third level detail)[15] derived from an examination of the internet copy print. Mr Mackenzie was critical of others who based their opinions on an examination of internet copies[16] but contradicted himself by basing part of his own presentation on just such a copy. The copy that he used contains evidence of 'damage' or 'disturbance' in the area to which Mr Mackenzie drew attention on pdf page 19 of the booklet[17] and in paragraphs 212 and 213 of chapter 25 it has already been observed that the internet copy appears to contain 'details' which are absent from originals of known provenance. Evidence based on copies can be inadmissible in civil and criminal courts in Scotland and the rationale for the rule is that experience has shown that copying processes can cause distortion that renders the copy unreliable. Even in the digital age that risk remains and was manifest in this instance: the copy used did contain signs of distortion. The presence of 'damage' or 'disturbance' in the copy image used by Mr Mackenzie undermined the integrity of the image and hence its reliability. Evidence based on cherry-picking some detail from a copy image of doubtful integrity would be inadmissible as a matter of Scots law as contravening the 'best evidence rule'[18] and an examiner ought not to rely on a copy image containing signs of damage or otherwise being of uncertain integrity.

29.13. Not all of the detail in the upper part of the mark depends on the internet copy print and that leads to the third matter that requires to be highlighted. Points 23-30 in the Tulliallan charting on pdf pages 12 and 13 of the presentation booklet are identified relative to a left thumb print in the police elimination form dated 18 February 1997, which was available to Mr Mackenzie on that date. Of those, points 23-28 are 'traditional' ridge characteristics.[19] This part of the Tulliallan presentation probably reflects the benefit of the additional detailed study that Mr Mackenzie carried out after the trial in the knowledge that the SCRO examiners had been questioned about the upper segment.[20] The fact remains that the material that he studied (the plain impression in the police elimination form dated 18 February 1997) was available to the examiners at SCRO at that date and it did show significant level two characteristics in the upper section of the mark. This confirms the conclusion that the SCRO examiners, Mr Mackenzie included, had insufficient reason to discount that part of the mark in 1997 and were in error in reaching a conclusion based on an incomplete comparison of the mark as a whole.

Mr Swann

29.14. The complication of reliance on 'copies' also arises at two points in the evidence of Mr Swann. The first concerns the materials that he studied in February/March 1999 and the second concerns the Daily Mail image.

13 Mr Mackenzie 30 September page 53ff
14 FI_0046 para 188 Inquiry Witness Statement of Mr Mackenzie
15 CO_0059 pdf page 15 (and SG_0282)
16 FI_0046 paras 181, 215 Inquiry Witness Statement of Mr Mackenzie
17 CO_0050 pdf page 6 and CO_0059 pdf page 19 (and SG_0282)
18 Chapter 30; and see chapter 25 para 266
19 CO_0050 pdf page 6 and CO_0059 pdf pages 12-13 (and SG_0282)
20 FI_0046 para 248 Inquiry Witness Statement of Mr Mackenzie and CO_0050 pdf page 6

29.15. As noted in paragraphs 20 and 25 of chapter 11 Mr Swann had repeatedly asked for access to original materials and Levy & McRae made that request to the Crown on a number of occasions without success. In the event, Mr Swann was presented with a photocopy of a charted enlargement in Production 152[21] and formed a concluded view by reference to that copy material prior to viewing original materials on 2 March 1999. Mr Swann returned the copy to Levy & McRae[22] and it has not been recovered. I have been unable to see it for myself and therefore I cannot comment on the quality of the reproduction but Mr Swann's evidence was that it was "adequate for the job I had to do but it was not obviously as clear as the original. It could not have been."[23]

29.16. There is no personal criticism of Mr Swann, nor Levy & McRae for that matter, for using the limited material that was made available to them. Evidence derived from study of copy materials in such circumstances would fall within the exception to the 'best evidence' rule and hence would have been admissible in court[24] but that misses the point. Mr Swann was being instructed to advise Ms McKie on the SCRO fingerprint evidence and no examiner instructed by the defence, no matter how experienced, should be put in the predicament of having to study photocopied materials.

29.17. There were two added complications in relation to the copy initially studied by Mr Swann. The first is that, being a copy of the charted enlargement in Production 152, it showed only the lower part of the mark. He will, therefore, have formed his conclusion on identity without the opportunity to assess the import of the differences in the upper part. Secondly, the very fact that it contained charted markings made by SCRO would be contrary to the normal procedures for independent analysis of the mark and posed the risk of 'guided interpretation' or reverse reasoning. Examiners instructed by the defence, as much as any other examiner, require to carry out an analysis of the mark uninfluenced by knowledge of the detail in the print. They need to be given not only first generation images (as opposed to photocopies) but also images clear of any marking by another examiner. Part of the exercise of advising an accused person may include commenting on any prosecution charting, but any charting should be studied only after the examiner has had the opportunity to study clean images of the mark and print.

29.18. It was not until some date after the Daily Mail printed a copy of Ms McKie's fingerprint in October 2000 that Mr Swann was able to satisfy himself that there was an explanation for the upper part of the mark. Comment has already been made in chapter 25 from paragraph 228 on the unreliability of using copies such as that in the Daily Mail; and even then the problem remained that Mr Swann could not point to a pattern of movement that could account for the mark as a whole.

Commentary

29.19. Having found image quality to be a critical variable I conclude that the fact that Mr Mackenzie and Mr Swann at various stages relied on copies (digital and paper) may well have been a contributory factor in the errors that they made relative to Y7.

21 ST_0006h
22 Mr Swann 21 October pages 10-11
23 Mr Swann 27 November pages 4-5; see also chapter 11 para 25
24 See chapter 30 para 13

29.20. As with the four SCRO examiners who signed the joint reports, another contributory factor will have been concentration on the lower part of the mark. In the case of Mr Swann that was all that was available to him when he first formed his conclusion but having formed the view at that stage that there were at least 16 points in sequence and agreement in the bottom part sufficient to prove identity to a level of 100% certainty it is easy to understand that at later stages, even when he studied the Kent image of the whole mark, differences in the top section may not have weighed sufficiently with him.

29.21. No imputation of any impropriety is intended by this conclusion. Mr Mackenzie falls into the same general category as his colleagues in SCRO discussed in chapter 28. The error on his part has to be seen in the context that external experts of standing and experience made the same mistake. As for Mr Swann, I bear in mind that he demonstrated his independence by testifying to a misidentification in the *McNamee* case.[25] I am entirely satisfied that Mr Mackenzie and Mr Swann genuinely believe the marks Y7 and QI2 Ross to have been correctly identified. That examiners of their standing and experience can have made a mistake in this instance reinforces the conclusion that even examiners of the utmost experience can fall into error when they are working at the margins of tolerance with complex marks such as Y7 and QI2 Ross.

25 FI_0149 pdf pages 33-34 (para 5.3) Inquiry Witness Statement of Mr Swann

Part 6

The Law and Practice of Fingerprints

Part 6

The Law and Practice of Fingerprints

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CHAPTER 30

GENERAL PRINCIPLES OF LAW OF RELEVANCE TO FINGERPRINT EVIDENCE

Introduction

30.1. Fingerprint identifications are led as expert evidence in criminal trials and fingerprint examiners are expert witnesses. This means that various legal issues are engaged. The discussion in this chapter takes account of developments in the law since the trial in *HMA v McKie* but, where appropriate, indicates the state of the law at that time.

Corroboration, proof beyond reasonable doubt and the best evidence rule

30.2. Scottish criminal law requires corroborated proof of the identification of the accused as the perpetrator of the crime alleged and proof of guilt of the accused beyond reasonable doubt.

Corroboration

30.3. The essence of the rule of corroboration[1] in Scotland is that an individual may not be convicted of a crime on the evidence of a single witness, no matter how convincing the evidence is. There must be at least two witnesses pointing to the guilt of the accused before there can be a conviction.

30.4. Though it is said that corroboration must come from two independent sources, corroborated proof can come from what is essentially one piece of evidence. One single fingerprint can provide corroborated proof, provided at least two witnesses speak to each step in the sequence of events leading to the conclusion that the mark was made by the accused.[2]

30.5. Corroboration does not require evidence exclusively indicative of guilt. If there is clear evidence from one witness, corroboration can come from evidence from a second witness consistent with guilt, even if that second source of evidence could be capable of innocent explanation.[3] It is not necessary that the second source is more consistent with guilt than innocence; it suffices that it is capable of being consistent with guilt.

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1 The rules on corroboration are different in England and Wales where at common law one witness is sufficient in all cases except perjury, Richardson J. Archbold: Criminal Pleading, Evidence and Practice 2011. 59th Edition, London: Sweet & Maxwell, 2010. 4-404. There is no general corroboration requirement in England and Wales and offences such as murder, robbery and rape are capable of being proved by the testimony of one single witness. Roberts P. and Zuckerman A.A.S. Criminal Evidence. 2nd Edition, Oxford: Oxford University Press, 2010, page 662. "[E]vidence in corroboration must be independent testimony which affects the accused by connecting or tending to connect him with the crime…[I]t must be evidence which implicates him, that is, which confirms in some material particulars not only the evidence that the crime has been committed, but also that the prisoner committed it", Lord Reading CJ, *R v Baskerville* [1916] 2 KB 658 at 667.

2 *Hamilton v HMA* 1934 JC 1, *Langan v HMA* 1989 JC 132

3 *Fox v HMA* 1998 JC 94

30.6. In particular, corroboration of a positive identification (whether or not the witness is well acquainted with the accused) can come from evidence short of positive identification, such as resemblance, even if the second witness is uncertain and cannot point to any peculiar physical characteristic to inform the degree of resemblance.[4]

Proof beyond reasonable doubt

30.7. Even where evidence is led from scientists, Scots law does not require 'scientific proof', that is to say the degree of proof that might establish a proposition to the satisfaction of a scientist.[5] The criminal standard of proof beyond reasonable doubt does not require mathematical certainty. In *Nolan v McLeod*[6] a conviction was based on two eyewitness identifications. One came from the complainer (i.e. the victim), who knew the accused and said that he was 80% certain of his identification, corroboration coming from a stranger who said that he was 75% sure. There is no general requirement that a witness have no doubts about his evidence.

30.8. It follows that there is no requirement in law that fingerprint evidence must attain 100% accuracy in order to be admissible. Nor is there a requirement in law that a fingerprint examiner achieve 100% certainty.

30.9. Visual identification (or eyewitness) evidence can be of doubtful quality, in particular where the observation is only fleeting. Judges are required to give juries advice to exercise caution when assessing the reliability of such evidence and such advice may be appropriate more generally where a jury has to assess the reliability of any evidence that is essential to conviction.[7]

30.10. Whether or not there is proof beyond reasonable doubt is a matter for the jury (or judge in a summary trial). It is not necessary that the witnesses to the fact (expert or lay) be themselves satisfied beyond reasonable doubt that the fact is indeed the case.[8] Consequently, it is not permissible to ask a witness whether he is sure of some matter beyond reasonable doubt, though he can be questioned relative to the nature and extent of any doubt that he may have.[9]

Admissibility and assessment of evidence

30.11. A distinction is drawn between (a) the admissibility and (b) the assessment of evidence. The rules on 'admissibility' determine whether the evidence may be led in court. Even if led, the judge or jury is not bound to accept the evidence as proof of any fact; whether or not they accept it will depend on their assessment of it.

Productions and best evidence

30.12. The first edition of Walkers on Evidence states the 'best evidence rule' in general terms: "Secondary or substitutionary evidence is inadmissible when primary or

4 *Adams v HMA* 1999 JC 139; and *Ralston v HMA* 1987 SCCR 467
5 *Dingley v Chief Constable, Strathclyde Police* 2000 SC(HL) 77 and 1998 SC 548
6 1987 SCCR 558
7 *Coubrough's Executrix v HMA* 2010 SCCR 473 paras 44-45
8 *Hendry v HMA* 1987 JC 63; *Paxton v HMA* 2000 JC 56; and *Johnston v HMA* 2009 JC 227; contrast *HMA v McGinlay* 1983 SLT 562 (Note)
9 See for example *Nolan v McLeod*, and further below

original evidence is, or ought to be, available."[10] Essentially the same statement is contained in the current, third, edition of that textbook,[11] though other texts question whether there is a 'best evidence rule' of general scope.[12] Lord Macphail, an authority on the Scots law of evidence, observed: "In my opinion the 'best evidence' rule is not a general exclusionary rule of evidence but a counsel of prudence."[13]

30.13. The rule was never absolute and, for example, one party can rely on a secondary copy of a document if the original is in the possession of an opponent and the opponent does not produce the original when called upon to do so.[14] Statutory provision has also been made for the admissibility of authenticated copies for the purposes of civil[15] and criminal proceedings.[16]

30.14. In relation to fingerprints it may be thought that the primary evidence is the mark itself, either on the object on which it was found or, if lifted, in the form of the lift. However, as Davidson observes: "the routine practice of the Crown to use secondary evidence of forensic material seems to have judicial support."[17] Fingerprint examiners routinely work from photographic images of the mark, including a lift. Despite the fact that a photograph is itself secondary evidence it has been held that fingerprint identification evidence can be given relative to a photograph of the mark (or lift),[18] and that the object from which the lift was taken need not be produced.[19]

30.15. Evidence can be excluded as inadmissible secondary evidence in some circumstances. For example, in *Lennox v HMA*[20] it was held that evidence by police officers identifying an accused from CCTV footage was inadmissible when the CCTV recording had been lost before the defence had had an opportunity to view it. The decision was based on the need to avoid prejudice to the accused, whose legal advisers had not seen the CCTV recording, and not on any absolute 'best evidence' rule.

30.16. In England consideration has been given to the admissibility of copies of photographic material, including video recordings. In *Kajala v Noble* Ackner LJ said:

> "The old rule, that a party must produce the best evidence that the nature of the case will allow, and that any less good evidence is to be excluded, has gone by the board long ago. The only remaining instance of it is that, if an original document is available in one's hands, one must produce it; that one cannot give secondary evidence by producing a copy. Nowadays we do

10 Walker A.G. and Walker N.M.L. The Law of Evidence in Scotland 1st Edition, William Hodge & Co., Scotland, 1964, page 243
11 Walker A.G. and Walker N.M.L. The Law of Evidence in Scotland 3rd Edition, edited by M.L. Ross and J. Chalmers, Tottel Publishing, 2009, page 371
12 Fraser P. Davidson on Evidence Scottish Universities Law Institute, 2009, paras 2.01-03; and Stair Memorial Encyclopaedia, Evidence Reissue, at 304
13 *Haddow v Glasgow City Council* 2005 SLT 1219, para 14
14 Walker A.G. and Walker N.M.L. The Law of Evidence in Scotland 3rd edition 2009, pages 374-5
15 Civil Evidence (Scotland) Act 1988, c 32 section 6
16 Criminal Procedure (Scotland) Act 1995, c 46 schedule 8, para 1
17 Fraser P. Davidson, 2009, page 29.
18 *Hamilton v Grant* 1984 SCCR 263 and *McFadyen v HMA* (1972) 36 JCL 57
19 *HMA v Dennison* 1978 SLT(N) 79
20 2010 SCCR 837

> not confine ourselves to the best evidence. We admit all relevant evidence. The goodness or badness of it goes only to weight, and not to admissibility: *Garton v Hunter* [1969] 1 All E.R. 451 *per* Lord Denning M.R. at 453e; see also Archbold, Criminal Pleading, Evidence and Practice (40th ed.), para. 1001. In our judgment, the old rule is limited and confined to written documents in the strict sense of the term, and has no relevance to tapes or films."[21]

30.17. Allowance has also to be made for the specialities of computer processing:

> "in the digital environment, the concept of an original document is meaningless. Arguably, the original document exists as RAM and is destroyed when the file is saved. Electronic transmission of a document by e-mail involves the creation of a new document, not the transfer of some pre-existing one. What matters in the digital environment is not originality, but integrity."[22]

30.18. 'Integrity' links to considerations of provenance and authenticity. Cross and Tapper on Evidence discuss these issues in the context of automatic recordings:

> "At a trial by jury, the party relying on a recording or film must satisfy the judge that there is a prima facie case that it is authentic, and it must be sufficiently intelligible to be placed before the jury. The evidence must define and describe the provenance and history of the recording up to the moment of its production in court. There is no need to account for the absence of the original if the copy is shown to be authentic."[23]

The final sentence cites *Kajala,* to which reference has been made. Among the other cases cited is *R v Robson*, where an issue was raised about the authenticity of a tape recording. Shaw J held that the trial judge could rule on the admissibility of the evidence by considering whether there was a prima facie case that the tape recording was authentic. If there was, the tape could be played to the jury who would then have to apply the more stringent test, in the context of the whole case: "that they must be sure of the authenticity of that evidence before they take any account of its content."[24]

Expert evidence

The admissibility of expert evidence

30.19. In Scotland the admissibility of expert evidence is determined according to three criteria:

1. Whether the court needs the assistance of an expert: expert evidence must deal with something where, without instruction or advice from an expert, the court would be unable to reach a sound conclusion as to the subject matter.[25]

2. Whether the expert is competent: the expert witness must have sufficient understanding of the theory and practice of the subject in question.

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21 1982 75 Cr App R 149 at page 152
22 Phipson on Evidence 17th Edition. Sweet & Maxwell, 2010, para 41-10
23 Cross and Tapper on Evidence 12th Edition, Oxford University Press, 2010, page 61
24 [1972] 1 WLR 651 pages 655-6
25 e.g. *Gage v HMA* 2011 SCL 645

3. Whether the substance of the proposed expert evidence is reliable: "the subject-matter in question must be part of a recognised body of science or experience which is suitably acknowledged as being useful and reliable, and properly capable of reaching and justifying the opinions offered."[26]

30.20. Experts are permitted to express opinions even in respect of techniques that are in their relative infancy, provided that the context for the opinion is properly stated.[27] Mere self-certification is not permitted. The court must be scrupulous to ensure that the evidence is properly based on specialised experience, knowledge or study.[28]

30.21. There is current debate about the approach of the courts in this context. The Law Commission published a consultation paper about the admissibility of expert evidence in England and Wales in April 2009[29] and a report, following consultation, in March 2011.[30] Speaking in November 2010 Lord Justice Leveson said "expert evidence of doubtful reliability may be admitted too freely with insufficient explanation of the basis for reaching specific conclusions, be challenged too weakly by the opposing advocate and be accepted too readily by the judge or jury at the end of the trial."[31]

30.22. Admissibility is dealt with differently in the United States. In *Daubert v Merrel Dow Pharmaceuticals Inc*[32] the Supreme Court considered Rule 702 of the Federal Rules of Evidence and held that "[T]he trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable."[33] Accordingly, where *Daubert* is applied the trial judge has an active 'gate-keeper' role.

30.23. Although fingerprint evidence is expert evidence and generally admissible in Scotland and England and Wales, the third criterion above remains relevant. It does not follow that all fingerprint evidence is or should be admissible. The third criterion could be relevant to the admissibility of evidence based on third level

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26 *HMA v Wilson* 2009 JC 336. The test in England and Wales was summarised by the Court of Appeal, Criminal Division in *R v Reed and Reed* [2009] EWCA Crim 2698; [2010] 1 Cr App R 23 (CA).

27 *R v Dallagher* [2002] EWCA Crim 1903

28 *R v Atkins and Atkins* 2009 EWCA Crim 1876, [2010] 1 Cr App R 8, para 27

29 The Law Commission, The Admissibility of Expert Evidence in Criminal Proceedings in England & Wales. The Stationery Office, 2009, Consultation Paper No. 190. URL: http://www.justice.gov.uk/lawcommission/docs/cp190_Expert_Evidence_Consultation.pdf

30 The Law Commission. Expert Evidence in Criminal Proceedings in England and Wales. The Stationery Office, 2011, LC325. URL: http://www.official-documents.gov.uk/document/hc1011/hc08/0829/0829.pdf

31 The Rt Hon Lord Justice Leveson 'Expert Evidence in Criminal Courts – The Problem' 16 November 2010 page 15. The current state of the law was also the subject of criticism on the part of the Court of Appeal in *R v Henderson, R v Butler, R v Oyediran* [2010] EWCA Crim 1269 at para 206.

32 509 US 579 (1993)

33 Page 589. *Daubert* is not followed in all States. Fingerprint evidence has been considered under *Daubert* - see *United States v Llera Plaza* CR No 98-362-10 (2002). In a preliminary ruling Pollak J concluded that fingerprint examiners could not present evaluation testimony as to their opinion that a particular latent print is the print of a particular person. In a second ruling Pollak J vacated his first ruling and allowed fingerprint examiners to testify as to whether a mark was made by a particular person. He held that ACE-V did not satisfy the scientific criteria in *Daubert* as it was "technical" rather than "scientific". In his revised opinion he decided that following a case called *Kumo Tire* pronouncements in *Daubert* applied to technical evidence. The judge did not change his view that fingerprint evidence based on ACE-V is not scientific.

detail because there are questions about its reliability;[34] and the admissibility of evidence based on probabilistic analysis[35] has yet to be considered by the courts.

Evaluation of expert evidence

30.24. Once expert evidence has been admitted by the court the fact finder has to evaluate and assess it in order to decide what weight, if any, it should receive.[36]

30.25. The classic statement about the role of an expert in Scots law is that of Lord President Cooper in *Davie v Magistrates of Edinburgh.*[37] In *Davie* the defenders maintained that the court was bound to accept the conclusions of an expert because no counter evidence was adduced by the pursuer. Lord President Cooper rejected this argument and said:

> "Expert witnesses, however skilled or eminent, can give no more than evidence. They cannot usurp the functions of the jury or Judge sitting as a jury, any more than a technical assessor can substitute his advice for the judgment of the Court… Their duty is to furnish the Judge or jury with the necessary scientific criteria for testing the accuracy of their conclusions, so as to enable the Judge or jury to form their own independent judgment by the application of these criteria to the facts proved in evidence. The scientific opinion evidence, if intelligible, convincing and tested, becomes a factor (and often an important factor) for consideration along with the whole other evidence in the case, but the decision is for the Judge or jury. In particular the bare ipse dixit of a scientist, however eminent, upon the issue in controversy, will normally carry little weight, for it cannot be tested by cross-examination nor independently appraised, and the parties have invoked the decision of a judicial tribunal and not an oracular pronouncement by an expert."[38]

30.26. The principle is simple but important. It is the court, not the expert, that makes the judgment even about facts to which the expert speaks.

30.27. Other points flow from Lord President Cooper's statement:

- The court (judge or jury) has a duty to consider expert evidence critically.
- The 'say so' of the expert is of limited weight in contrast to the underlying reasoning. A view that is widely held amongst a scientific community or held by someone of great eminence in the field, if unexplained or unconvincing, will carry little weight.[39]
- An expert should expect to be tested; and not just through cross-examination. The role of the expert to educate the court includes providing the judge or the jury with the means of testing the accuracy of the conclusions reached, to enable them to form their own independent

34 See chapter 35
35 See chapter 41
36 See for example Professor Davidson's comments in Davidson F. Evidence. Edinburgh: W Green, 2007, para 11.16
37 1953 SC 34; see also Lord President (Rodger) in *Dingley v Chief Constable, Strathclyde Police,* 1998 SC 548 page 555A; *McTear v Imperial Tobacco* (2005) 2 SC 1; and *HMA v Wilson*
38 *Davie v Magistrates of Edinburgh* page 40
39 Lord Prosser in *Dingley v Chief Constable, Strathclyde Police* 1998 SC 548 page 604 C-D

judgment. To that end the report should be transparent.[40] This requires the expert to disclose his methodology, any critical facts on which the conclusion is based, any assumptions that may have been made, any viable alternatives that might have been available and the process of reasoning that led to the conclusion.

- Expert evidence has to be considered along with the whole other evidence in the case.

The expression of opinions by experts

30.28. Lord President Cooper stated that experts must not "usurp" the role of the jury. How then should an expert express his opinion?

General principles

30.29. As is discussed elsewhere in this Report,[41] fingerprint evidence is not based on statistical information. A fingerprint examiner who has spent years studying marks and prints can form a judgment, based on his experience, but his conclusion is subjective. Fingerprint evidence is not alone in that respect. The courts have, particularly since *HMA v McKie*, given close consideration to the proper manner in which such evidence should be presented.

30.30. Some general principles can be derived from case law as follows:

1. An expert report should be transparent.[42]

2. The expert must not express his opinion in a way that suggests that the jury has no decision to make, such as by stating that there is no "reasonable" doubt.[43]

3. The expert may express an evaluative opinion, that is to say he may be asked to explain the strength of his opinion.[44] To prevent an expert from doing so would be to give the court raw material without the means of evaluating it and could as easily lead to over-valuation of evidence as under-valuation.[45]

4. Evaluative opinions may be provided, for example as to the likelihood of a match, whether or not there is a statistical basis for the evaluation.[46]

5. Any statistical database that is used should be robust and fully disclosed.[47]

6. If there is no supporting statistical database and the assessment is subjective and based on experience, these facts should be clearly disclosed.[48] Such evidence should be approached with caution.[49] As the Court of Appeal put it

40 *R v T* [2010] EWCA Crim 2439; [2011] Cr App R 9, para 97 Thomas LJ; and see *Wilson v HMA* 2009 JC 336 at paras 58-63.
41 Chapters 35 and 41
42 *R v T* para 97
43 *Hendry v HMA* pages 69-70, *R v Doheny, R v Adams* [1997] 1 Cr App R 369 (CA)
44 *Hendry v HMA* page 70
45 *R v Atkins and Atkins* para 23
46 *R v T, R v Atkins and Atkins*
47 *R v T*
48 *R v Atkins and Atkins* para 31, *R v T* para 96
49 *R v Atkins and Atkins* para 23 and *R v T*

> in *R v Reed and Reed*,[50] "care must be taken to guard against the dangers of that evaluation being tainted with the verisimilitude of scientific certainty."

30.31. These principles can be illustrated by reference to two English decisions that post-date *HMA v McKie*.

30.32. In *R v Atkins and Atkins*[51] an expert in facial comparison gave evidence of similarities between the face shown on CCTV footage and that of one of the accused. The expert could not positively identify the accused but expressed the strength of his opinion on a sliding scale from "lends no support" to "lends powerful support" to the allegation that the man in the camera shot was the accused. The defence argued that the expert should only have testified as to the similarities and dissimilarities between the two faces and should not have graded his conclusion by reference to a scale because there was no database showing the distribution of facial features in the population and the expert's judgment was based only on his experience. The Court of Appeal held that the expert could give evidence based on experience, even though it did not derive from a statistical database. Indeed, it was recognised that for the expert to give no guidance on the matter would be undesirable because it would give the jury raw material with no means of evaluating it and was as likely to result in over-valuation of the evidence as under-valuation. That said, the Court observed that such evidence has to be approached with caution and it has to be made "crystal clear" to the jury that it was not supported by any statistical database.[52]

30.33. In *R v T*, an expert in footwear mark comparisons gave evidence of the likelihood of a match by reference to a scale that ran from "weak or limited support" to "extremely strong support". It emerged in evidence that the expert's placement on the scale depended on a calculation by him of mathematical likelihood ratios based on some limited statistical data relating to footwear patterns and sizes. The expert's report made no reference to the use of a likelihood ratio or the formula used in the calculation and the Court of Appeal was critical of the consequent lack of transparency.[53] The court noted that an approach based on mathematical calculations is only as good as the reliability of the data used[54] and concluded that likelihood ratios or other mathematical formula should not have been used in expressing the conclusions because the available data was inadequate in many respects.[55] The court stated:

> "It is of course regrettable that there are, at present, insufficient data for a more certain and objective basis for expert opinion on footwear marks, but it cannot be right to seek to achieve objectivity by reliance on data which does not enable this to be done. We entirely understand the desire of experts to try and achieve the objectivity in relation to evidence of footwear marks, but the work done has never before, as we understand it, been subject to open scrutiny by a court."[56]

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50 *R v Reed and Reed* [2009] EWCA Crim 2698, [2010] Cr App R 23 at para 121
51 [2009] EWCA Crim 1876, [2010] 1 Cr App R 8
52 *R v Atkins and Atkins* para 23
53 *R v T* paras 97-99
54 *R v T* para 80
55 *R v T* para 95
56 *R v T* para 87

30.34. The court accepted, following *Atkins and Atkins,* that an expert in footwear mark comparison can use his experience to express an evaluative opinion[57] but if there is a lack of reliable data such an opinion has to be carefully expressed. In *R v T* the expert used the word "scientific" in his opinion. The court stated:

> "It is essential, if the expert examiner of footwear expresses a view which goes beyond saying that the footwear could or could not have made the mark that the report makes clear that this is a view which is subjective and based on his experience. For that reason we do not consider that the word 'scientific' should be used, as, if that phrase is put before the jury, it is likely to give an impression to the jury of a degree of precision and objectivity that is not present given the current state of this area of expertise."[58]

The expert's duties to the court

30.35. In Scottish civil litigation an expert is usually engaged by and paid for by a party to the litigation in question. In criminal cases it is not dissimilar. The defence engages experts, as happened in *HMA v McKie.* More often than not the expert will be paid for by legal aid funds. The Crown's experts are often employees of law enforcement agencies. Judicial comment both in Scotland and England about the duties of expert witnesses should be considered against this background.

30.36. The basic position is that such witnesses owe an overriding duty to the court, notwithstanding any contractual or other relationship with a party to the litigation. From that general principle flow a number of other duties.

30.37. A starting point in this context is the decision of the House of Lords in *Whitehouse v Jordan*.[59] In his speech, Lord Wilberforce, with whom Lord Fraser of Tullybelton concurred,[60] said "it is necessary that expert evidence presented to the court should be, and should be seen to be, the independent product of the expert, uninfluenced as to form and content by the exigencies of the litigation."[61]

30.38. In *National Justice Compania Naviera SA v Prudential Assurance Co Ltd*,[62] *(The Ikarian Reefer),* Cresswell J provided a detailed analysis of an expert's duties to the court:[63]

> "The duties and responsibilities of expert witnesses in civil cases include the following:
>
> (1) Expert evidence presented to the Court should be, and should be seen to be, the independent product of the expert uninfluenced as to form or content by the exigencies of litigation (*Whitehouse v. Jordan* [1981] 1 W.L.R. 246 at p. 256, per Lord Wilberforce).

57 *R v T* para 95
58 *R v T* para 96
59 [1981] 1 WLR 246 (HL)
60 *Whitehouse v Jordan* page 268
61 *Whitehouse v Jordan* pages 256-257
62 [1993] 2 Lloyd's Rep. 68
63 *National Justice Compania Naviera SA v Prudential Assurance Co Ltd* page 81

(2) An expert witness should provide independent assistance to the Court by way of objective unbiased opinion in relation to matters within his expertise (see *Polvitte Ltd. v Commercial Union Assurance Co. Plc.*, [1987] 1 Lloyd's Rep 379 at p. 386 per Mr Justice Garland and *Re J*, [1990] F.C.R. 193 per Mr Justice Cazalet). An expert witness in the High Court should never assume the role of an advocate.

(3) An expert witness should state the facts or assumption upon which his opinion is based. He should not omit to consider material facts which could detract from his concluded opinion (*Re J*, above).

(4) An expert witness should make it clear when a particular question or issue falls outside his expertise.

(5) If an expert's opinion is not properly researched because he considers that insufficient data is available, then this must be stated with an indication that the opinion is no more than a provisional one (*Re J* above). In cases where an expert witness who has prepared a report could not assert that the report contained the truth, the whole truth and nothing but the truth without some qualification, that qualification should be stated in the report (*Derby & Co. Ltd. and Others v Weldon and Others*, The Times, Nov 9, 1990 per Lord Justice Staughton).

(6) If, after exchange of reports, an expert witness changes his view on a material matter having read the other side's expert's report or for any other reason, such change of view should be communicated (through legal representatives) to the other side without delay and when appropriate to the court.

(7) Where expert evidence refers to photographs, plans, calculations, analyses, measurements, survey reports or other similar documents, these must be provided to the opposite party at the same time as the exchange of reports (see 15.5 of the Guide to Commercial Court Practice)."

30.39. The *Ikarian Reefer* was approved by Lord Caplan sitting in the Outer House of the Court of Session in Scotland in *Elf Caledonia Ltd v London Bridge Engineering Ltd and Ors*.[64]

Authorities since 1999

30.40. *R v Sally Clark*[65] emphasises the importance of disclosure by experts. The failure to disclose microbiological tests in three statements made for the purposes of a trial, in oral evidence or in his report was said by the Court of Appeal in England to fall a long way short of the standards expected of a pathologist.[66]

30.41. In *R v Harris, R v Rock, R v Cherry and R v Faulder*[67] the Court of Appeal stated that the guidance given in the *Ikarian Reefer* is "very relevant to criminal

64 Unreported judgment dated 2 September 1997 at page 225
65 [2003] EWCA Crim 1020, [2003] 2 FCR 447
66 See also *R v Puca* [2005] EWCA Crim 3001; and the earlier Scottish case of *Preece v HMA* 1981 Crim LR 783.
67 [2005] EWHC Crim 1980, [2006] 1 Cr App R 5

proceedings" and that it saw nothing new in such an observation.[68] The court also noted that where an expert advances a hypothesis or where there is disagreement as to a scientific or medical issue the expert owes a duty to explain to the court that what he is advancing is a hypothesis or that an issue is controversial.[69] The *Ikarian Reefer* was also mentioned in *Jones v Kaney*[70] where the Supreme Court lifted the immunity that experts enjoyed from being sued for negligence.

30.42. Turning to Scottish authority, Lord Carloway cast some doubt as to the application of these principles in *Amy Whitehead's Legal Representative v Graeme John Douglas and Another.*[71] He stated: "It is not at all clear that an expert, instructed by one party, has some form of duty to the court greater that any professional or other witness. Of course once he is sworn, he must abide by the terms of his oath. However, when he is in the witness box, what he is permitted and not permitted to say will depend not just on what he is asked but on what he is not asked. He is not in a position to volunteer information."[72]

30.43. In *BSA International SA v Irvine*[73] Lord Glennie stated that his own views were "somewhat at variance" to those of Lord Carloway: it has been accepted in Scotland for some time that an expert witness owes a duty to the court to give his honest and complete report; and, as a consequence, an expert is not entitled to keep some reservations about his opinion to himself and is under a duty to volunteer information if failure to do so would leave the court with a misleading impression of his whole evidence.[74] The *Ikarian Reefer* was applied by Lord Nimmo Smith in *McTear v Imperial Tobacco Ltd*,[75] by Lord Hodge in *Cramaso LLP v Viscount Reidhaven's Trustees*[76] and by the High Court of Justiciary in *HMA v Wilson* in 2009. The High Court of Justiciary stated:

> "an expert witness should explain why any relevant material to his conclusions is ignored or regarded as unimportant...the court will expect in a criminal matter that an expert's report must state the facts upon which opinions are based, and if assumptions are made, these must be clearly identified. Reasons must be given for conclusions. Whether instructed for the prosecution or defence, the principal duty of an expert witness is to the court, and this overrides any duty he owes to the party which instructed him. Again, explanations should be given for the basis on which all relevant material is either accepted or rejected."[77]

Transparency and pre-trial preparation

30.44. The obligation of transparency is not confined to experts instructed by the prosecution. It applies to defence experts also. In two recent decisions the English Court of Appeal has stressed the need for "proper and robust pre-trial

68 *R v Harris, R v Rock, R v Cherry and R v Faulder* paras 272-273
69 *R v Harris, R v Rock, R v Cherry and R v Faulder* para 272
70 See [2011] UKSC 13, [2011] 2 WLR 823 at para 123
71 [2006] CSOH 178, (2007) BMLR 42
72 *Amy Whitehead's Legal Representative v Graeme John Douglas and Another* para 17
73 2009 SLT 1180
74 *BSA International SA v Irvine* para 19
75 (2005) 2 SC 1
76 [2010] CSOH 62
77 *HMA v Wilson* 2009 JC 336 paras 60-61

management"[78] of cases where there is expected to be conflicting expert evidence in relation to complex scientific evidence: *R v Reed and Reed* (a case concerning low template DNA) and *R v Henderson* (three appeals concerning shaken baby syndrome). In *Henderson* Moses LJ observed:

> "In *Kai-Whitewind* Judge L.J. rejected the contention that where there is a conflict of opinion between reputable experts, expert evidence called by the Crown is automatically neutralised [84]. He emphasised that it was for the jury to evaluate the expert evidence even where the experts disagree as to the existence of the symptoms upon which their opinions were based [88]–[89]. But how is a jury to approach conflicting expert evidence? We suggest it can only do so if that evidence is properly marshalled and controlled before it is presented to the jury. Unless the evidence is properly prepared before the jury is sworn it is unlikely that proper direction can be given as to how the jury should approach that evidence. Thus the jury will be impeded in considering that evidence in a way which will enable them to reach a logically justifiable conclusion."[79]

30.45. Lords Carloway and Glennie were agreed in *Amy Whitehead's Legal Representative*[80] and *BSA International*[81] that there are some differences in practice between Scotland and England.[82] There is not always a duty on a party to proceedings in Scotland to disclose the contents of an expert report. Nonetheless, it is essential that issues in relation to expert evidence are properly focussed in trials. That task is made much more difficult if experts do not provide transparent and clear reports.

Routine evidence: sections 280 and 281 of the Criminal Procedure (Scotland) Act 1995

30.46. The full rigours of these general rules on expert evidence are tempered by statutory provisions tailored to "routine"[83] forensic evidence, including fingerprint evidence.

30.47. The form of the fingerprint reports prepared by the SCRO officers for the trials in *HMA v Asbury* and *HMA v McKie* and the revised style now used in current practice[84] were influenced by the statutory provisions in sections 280 and 281 of the 1995 Act which specifically deal with "Routine evidence".[85]

30.48. Section 280(4) of the Criminal Procedure (Scotland) Act 1995 provides:

> "For the purposes of any criminal proceedings, a report purporting to be signed by two authorised forensic scientists shall, subject to subsection (5) below, be sufficient evidence of any fact or conclusion as to fact contained in the report and of the authority of the signatories."

78 *R v Henderson* [2010] EWCA Crim 1269; [2010] 2 Cr App R 24, para 205
79 Moses LJ in *R v Henderson* para 203
80 *Amy Whitehead's Legal Representative v Graeme John Douglas and Another* para 16
81 *BSA International SA v Irvine* para 17
82 See also *Walker v HMA* [2011] HCJAC 51, 2011 SCL 755
83 See the heading to the sections in the Act
84 CO_4109
85 See chapter 31

30.49. Fingerprint practitioners come within the range of "forensic scientists" for this purpose.

30.50. This statutory provision had (and continues to have) a number of practical consequences for the manner in which fingerprint evidence is presented at criminal trials in Scotland.

30.51. The rule applies to prosecution and defence alike. It grants, in effect, three dispensations from the ordinary rules applicable to expert evidence.

1. Forensic scientists (including fingerprint examiners) are permitted to collaborate in the preparation of a joint report and there is no need to prepare individual personal opinions.

2. The section supports the preparation of an abbreviated report. The report can be restricted to a statement of the factual conclusion reached by the forensic scientists without the need to detail the analysis that they undertook or the reasons for the conclusion.[86] At the time of the Asbury and McKie trials it was the practice of the Glasgow fingerprint bureau of SCRO to produce charted enlargements to accompany the report but that practice went beyond the statutory requirements and is no longer followed.

3. The report can speak for itself without the necessity for any witness to attend the trial and give evidence as to its contents.

Sub-section (5) restricts these privileges to reports prepared by duly authorised "forensic scientists"; and sub-section (6) provides that the report must be served on the other party, who may challenge the report, in which event at least one of the signatories will require to attend the trial and give evidence.

30.52. Section 281(2) of the 1995 Act is also relevant. By using the procedure set out in this provision the prosecutor[87] can ensure that, if it does become necessary to lead evidence of the contents of a report, this can be done by calling only one of the two signatories to the report unless the accused serves notice that he requires the attendance of both signatories.

30.53. These provisions date from 1980 and the rationale for their introduction was said to be: "This section contains a number of provisions designed to make it easier for the prosecutor to establish certain matters which are rarely in dispute…"[88] The implications are discussed in chapter 31.

Disclosure

30.54. Disclosure arises at two levels:

1. There is the duty on investigating bodies such as the police to provide information to the prosecution.

86 *Meek v Vannet* 2000 SCCR 192

87 This provision is confined to the prosecutor because it is qualifying the requirement for corroboration that only applies to the prosecution.

88 Annotation to section 26 of the Criminal Justice (Scotland) Act 1980 in 1980 Current Law Statutes Annotated, volume 2 (Sweet & Maxwell)

2. There is also the duty on the prosecution to disclose certain evidence to the accused.

The duty of investigating bodies to provide information to the prosecution

30.55. In the case of *Smith v HMA*[89] Lord Justice Clerk Thomson gave what is viewed as the classic description of disclosure in Scotland. The case is authority for the following propositions:

(i) The duty of the police is of investigation under the supervision of the procurator fiscal.

(ii) It is for the Crown Office and Procurator Fiscal Service (COPFS), and not the police, to decide whether the results of an investigation justify prosecution.

(iii) The police must put the result of their investigations fairly before the fiscal and disclose everything that may be relevant and material to the issue of whether the suspected party is innocent or guilty.

(iv) The police may exercise a power of selection in what they disclose but because they are not the final judge of what may be relevant and material they should err on the safe side and should consult the procurator fiscal if in doubt.

30.56. The *Smith* duty would apply equally to fingerprint examiners and other forensic scientists engaged by the police or the prosecution.

30.57. The English case of *R v Ward*[90] points to a bridge between the duty to provide information on the part of investigating agencies (such as forensic scientists) and the duty owed by the prosecution to the defence. The bridge is that the prosecution should not simply be the passive recipient of such information as investigating agencies may elect to pass on but should make positive inquiries to discover if there is other disclosable material held by the agency. The background was a prosecution in connection with a series of bombings in which forensic scientists gave evidence of the finding of traces of nitro-glycerine. Unknown to the prosecution at the time of the trial the scientists in some instances exaggerated their findings, concealed the fact that experiments had shown that dyes in boot polish could mimic nitro-glycerine and also concealed the fact that one test had shown a risk of contamination. The Court of Appeal held that the irregularities in the forensic evidence were alone sufficient to justify quashing the conviction and suggested that two lessons could be learned for the future. The first was that there was a need to spell out to forensic scientists that it is "the clear duty of government forensic scientists to assist in a neutral and impartial way in criminal investigations." The second was expressed in these terms:

> "... we believe that the surest way of preventing the misuse of scientific evidence is by ensuring that there is a proper understanding of the nature and scope of the prosecution's duty of disclosure… [T]he prosecution's general duty of disclosure in respect of scientific evidence…exists irrespective of any request by the defence. It is also not limited to documentation on which the opinion or findings of an expert is based. It

89 1952 JC 66
90 [1993] 1 WLR 619

> extends to anything which may arguably assist the defence… [I]t is a positive duty, which in the context of scientific evidence obliges the prosecution to make full and proper inquiries from forensic scientists in order to ascertain whether there is discoverable material."[91]

The duty of disclosure by the prosecutor to the defence

30.58. The duty of the police to disclose evidence to the Crown is long standing. What has changed is the extent of the duty of disclosure by the prosecutor to the defence. In *Smith* it was recognised that the extent of necessary disclosure to the defence was a question of degree.[92] Since the trial in *HMA v Asbury* in 1997 there has been what Lord Hope has described as a cultural revolution in disclosure.[93] The starting point was the decision of the High Court of Justiciary in *McLeod v HMA*[94] on 19 December 1997. In argument in that case the Crown accepted the traditional formulation of its duty of disclosure:

> "The Crown accepts that it has an obligation to disclose any information which supports the defence case. This duty has long been set out in the Book of Regulations... and it extends to any information which supports any known or stateable defence or which undermines the Crown case."[95]

30.59. The specific issue in *McLeod* was the extent to which the Crown had a duty to disclose to the defence statements that witnesses had given to the police. The point was decided in that case on a concession by the Crown that it would disclose certain statements. In 2005, in *Sinclair v HMA,*[96] the Privy Council decided that the prosecution's duty of disclosure extended to the statements given to the police by witnesses who were to be called at the trial whether on behalf of the prosecution or the defence. In *Holland v HMA*[97] the Privy Council also held that previous convictions and outstanding charges against witnesses were in principle disclosable; but whether or not they have to be produced in any particular case remains a question of circumstance to be determined by asking whether this information would materially weaken the Crown's case or materially strengthen the case for the defence: *HMA v Murtagh*.[98]

30.60. In principle the duty of the prosecution is spontaneously to disclose material of which it is aware that would materially weaken the Crown's case or materially strengthen the case for the defence but there are practical limits to the extent to which the prosecution can know the line of defence. In *McDonald and others v HMA* the Privy Council held that the duty of the prosecution did have practical limits and did not extend to searching out material that might be relevant to some possible line of defence. In the final analysis "The Crown's job is to prosecute, not to defend."[99]

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91 *R v Ward* page 676
92 *Smith v HMA* page 72
93 *McDonald and others v HMA* [2008] UKPC 46, 2010 SC (PC) 1, para 20
94 1998 JC 67
95 *McLeod v HMA* page 79B
96 2005 SC (PC) 28
97 2005 SC (PC) 3
98 2010 SC (PC) 39
99 *McDonald and others v HMA*, Lord Rodger para 60

Lord Coulsfield's review

30.61. Lord Coulsfield was asked to review the law and practice relating to disclosure. His recommendations were published in a report in 2007.[100] It was noted that Scots case law provided different definitions of the nature of the information that the prosecutor must disclose. Lord Coulsfield recommended that there should be a statutory definition of the duty of disclosure.[101]

The Criminal Justice and Licensing (Scotland) Act 2010: disclosure

30.62. Following Lord Coulsfield's report the Scottish Parliament legislated on disclosure. Part 6 of the Criminal Justice and Licensing (Scotland) Act 2010 makes provision for a statutory system of disclosure, with the provisions coming into force on 6 June 2011.[102]

30.63. Four aspects of the Act are noted. First, it provides that "investigating agencies" (broadly police forces and certain other persons as the Scottish Ministers may prescribe)[103] must detail to the prosecutor all information obtained in the course of investigation "that may be relevant to the case for or against the accused" and must provide the prosecutor with any of that information that the prosecutor may specify.[104] The relevant agencies are prescribed in the Disclosure (Persons engaged in the Investigation and Reporting of Crime or Sudden Deaths) (Scotland) Regulations.[105] The list is extensive but does not include the Scottish Police Services Authority.

30.64. Second, it provides a statutory test for disclosure by the prosecution to the defence. Subject to certain prescribed exceptions, there is a duty of disclosure if:

> "(a) the information would materially weaken or undermine the evidence that is likely to be led by the prosecutor in the proceedings against the accused;
>
> (b) the information would materially strengthen the accused's case, or
>
> (c) the information is likely to form part of the evidence to be led by the prosecutor in the proceedings against the accused."[106]

30.65. Third, the duty of disclosure is amplified in solemn cases by the prosecutor being required to provide to the defence details of non-sensitive information that the prosecution is not obliged to disclose but may be relevant to the case for or against the accused.[107]

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100 The Rt Hon Lord Coulsfield. Review of the Law and Practice of Disclosure in Criminal Proceedings in Scotland. The Scottish Government, 2007, ISBN 978 0 7559 5524 4.
101 The Rt Hon Lord Coulsfield. Review of the Law and Practice of Disclosure in Criminal Proceedings in Scotland. The Scottish Government, 2007, ISBN 978 0 7559 5524 4. Para 5.46
102 Criminal Justice and Licensing (Scotland) Act 2010 (Commencement No 8, Transitional and Savings Provisions) Order 2011 SSI 2011 No 178 HMSO 2010
103 Criminal Justice and Licensing (Scotland) Act 2010 asp 13 section 117(3) HMSO 2010
104 Criminal Justice and Licensing (Scotland) Act 2010 asp 13 sections 117-120
105 SSI 2011 No 146 HMSO 2011
106 Criminal Justice and Licensing (Scotland) Act 2010 asp 13 sections 121 and 123
107 Criminal Justice and Licensing (Scotland) Act 2010 asp 13 section 122

30.66. Fourth, the Act addresses the practical problem that full disclosure by the prosecutor may require knowledge of the line of defence. The Act makes provision for a defence statement setting out the nature of the defence and any matters of fact on which the accused takes issue with the prosecution. Provision of a defence statement is optional in summary cases[108] but compulsory in solemn cases.[109]

108 Criminal Justice and Licensing (Scotland) Act 2010 asp 13 section 125

109 Criminal Justice and Licensing (Scotland) Act 2010 asp 13 section 124(3), introducing section 70A of the Criminal Procedure (Scotland) Act 1995

CHAPTER 31

THE LAW RELATING SPECIFICALLY TO FINGERPRINT EVIDENCE

31.1. Witnesses to the Inquiry spoke of the way in which they regarded fingerprint evidence prior to 'the McKie case' referring to it as 'infallible' and save for those rare occasions on which it was challenged as 'routine evidence'. It is necessary to see these comments in an historical context.

'Infallibility'

31.2. An accused may be convicted on fingerprint evidence alone in Scotland[1] and in England and Wales.[2] The mark must be found in incriminating circumstances. For example, an accused's mark on a false number plate on a getaway car does not justify conviction in the absence of other incriminating evidence, as the mark could have been made at a time other than during preparation for the crime.[3]

31.3. The foundation authority relating to fingerprint evidence in Scotland is the case, in 1933, of *Hamilton* which concerned a theft committed by breaking in to a shop. The accused's mark was found on a bottle in the shop. The bottle, which was wrapped before the crime, was found after it, unwrapped and with a fingermark on it. The opinion of Lord Justice General Clyde contains a summary of the evidence of the fingerprint officers and it included a claim to infallibility:

> "Evidence was given by two Scotland Yard experts, who deponed that, in the first sixteen of the recognised points of comparison, there was complete identity between the finger-mark on the bottle and the print of one of the appellant's fingers. The experts further deponed that identity to the extent of the first sixteen points was, in their opinion, more than sufficient to warrant the inference of identity between the finger which made the mark on the bottle and the finger from which the print was taken. Lastly, they deponed that this method of identification has been widely followed not only in this country but elsewhere for many years; and that—so far, at any rate—no case of identity in the ridges of the skin of the fingers of two different persons has been discovered. They went as far as to claim for the finger-print method of identification the quality of infallibility. This may well be thought (in words at least) to put the case too high, but the substance of their evidence was that, over an area of experience of great extent, and over a tract of time of highly significant duration, the finger-print method of identification has never once proved to be unreliable. There was no counter-evidence."[4]

31.4. Though the Lord Justice General proceeded to disapprove of the claim to infallibility he used the scarcely weaker alternative of 'practical infallibility':

> "I deprecate the use of the word 'infallibility' in this connection at all. What the experts obviously mean is, not absolute, but practical infallibility—that is

1 *Hamilton v HMA* 1934 JC 1; and *HMA V Rolley* 1945 JC 155 (a case concerning a palm print). *Hamilton v HMA* was applied in a murder case as recently as 1989 in *Langan v HMA* 1989 JC 132.
2 *R v Castleton* (1909) 3 Cr App Rep 74
3 *Reilly v HMA* 1986 SCCR 417; see also *Campbell v HMA* 2008 SCCR 847
4 *Hamilton v HMA*

> to say, a presumption of truth, the reliability of which may be accepted, not because it is irrebuttable in its own nature, but because long and extensive experience is shown to provide no instance in which it has ever been successfully rebutted. All proof depends at bottom on presumption; even the evidence of two credible and uncontradicted witnesses who speak to the same occurrence is probatio probata[5] not because it is impossible that they should both be mistaken, but because of the high presumption that what two credible witnesses say happened in their presence did actually happen. Accordingly, the strength of the link provided by the finger-print depends on the degree of reliability which—on the evidence presented to them—the jury thought should be attributed to the finger-print method as applied by the police and the experts in the present case. They evidently thought the presumptions in favour of its reliability so high as to warrant the circumstantial inference that the appellant was the criminal, or one of the criminals, who broke into the shop."[6]

31.5. Lord Sands was perhaps more cautious:

> "...as regards finger-marks, if they are to be relied upon and treated as conclusive, it must be clearly proved that they are the finger-marks of the accused person. That is done by calling in persons expert in regard to finger-marks.... This is a somewhat novel mode of criminal investigation. It will not do for the Crown simply to lead evidence of two experts who say these were the man's finger-marks. As I say, the day may come when that may be enough, and then it will be for the accused to endeavour to challenge or shake that evidence. But, as matters stand, the Crown must proceed to justify the opinion of the experts by eliciting from them upon what their opinion is based. That was done in the present case in the manner which your Lordship in the chair has indicated, and the jury were satisfied with the explanation. Now, it might very well be that such evidence might not satisfy every man, that one might find persons who would say, 'It may be that that evidence is true as regards past experience, but we will not take it that there cannot be two people with identical finger-marks, or that this is such an improbability as amounts practically to an impossibility.' A or B might say that; but it is a question for the jury. It is for them to judge of the evidence, and, if on the evidence they are satisfied with the explanations of the experts and the reasons they give, I do not think we can interfere. In the present case the jury were satisfied. I do not for a moment say that a jury are bound to accept finger-print evidence, and expert evidence connected with it, in every case as conclusive. It is a question for the jury in the particular case..."[7]

31.6. The next authority of note is *HMA v Rolley*[8] (in 1944), which was also a prosecution for theft. After the crime a palm print was found on the sideboard of the house that had been broken in to. Mr Rolley gave evidence denying his guilt. The only evidence against him was that of four fingerprint officers who identified the palm print as having been made by him by reference to two sets of charted comparisons, one small and showing 16 points of identity and the other enlarged and showing 25 points in

5 Literally a "proved proof", a fact that is not permitted to be impugned or challenged.
6 *Hamilton v HMA* page 4
7 *Hamilton v HMA* pages 5-6
8 *HMA v Rolley*

identity. The law report reproduces the directions that the trial judge (Lord Justice Clerk Cooper) gave to the jury. Having read to the jury Lord Justice General Clyde's reference to 'practical infallibility' in *Hamilton* he gave the jury this explanation of it:

> "… in this imperfect world absolute certainty is unobtainable by any method known to the law or to science, and that what we are looking for is practical infallibility. The real question for you will be whether you are satisfied, from the explanations given by these four gentlemen, that their experience has been gathered over a sufficiently long number of years—I think twenty-six years in one case—and has extended to a sufficiently large number of cases to justify the confidence with which their conclusion was expressed."[9]

In other words, fingerprint evidence was as certain as that provided by any method known to the law or to science. It may come as no surprise that, despite Mr Rolley testifying as to his own innocence, the law report ends: "THE JURY returned a verdict of guilty."

31.7. The first edition of the Scottish textbook on evidence 'Walkers on Evidence'[10] was written in 1964 and notes that fingerprint evidence was not regarded as infallible "but as providing evidence of a degree of probability which is ample for judicial proof".[11] The text goes on to note that in Britain experts would not be prepared to commit themselves to the view that two marks were made by the same person unless there were at least 16 identical characteristics, adding that there is no reason why evidence of a lower number of characteristics in common should not be admissible, though perhaps not sufficient in itself to justify a conviction.

31.8. That concluding comment was repeated as part of the submission by the Solicitor General (Rodger) in the first Scottish case concerning DNA evidence, *Welsh v HMA,*[12] in 1991, where parallels were drawn with fingerprint evidence. Lord Justice Clerk Ross records the Solicitor General's submission:

> "The Solicitor-General explained that this was the first occasion upon which the appeal court had had to consider evidence of DNA profiling. He maintained, however, that that did not create any difficulty in the present case. The trial judge had correctly reminded the jury that they did not require to be satisfied to the extent of mathematical certainty. Although in practice in fingerprint cases one looked for sixteen points of similarity, there was no reason why evidence should not be given that a smaller number of similarities would suffice."[13]

31.9. The opinion of the Lord Justice Clerk in *Welsh* is also worthy of mention for the following excerpt: "DNA profiling, like fingerprint evidence, depends to some extent on theory and statistics, and it is for the jury to assess the evidence and determine whether they accept it as sufficient to warrant conviction."[14] The extent to which

9 *HMA v Rolley* page 158
10 Walker A.G and Walker N.M.L. The Law of Evidence in Scotland.1st Edition, Edinburgh: W. Green, 1964.
11 Walker A.G and Walker N.M.L. The Law of Evidence in Scotland. 1st Edition, 1964. Para 12, pages 12-13.
12 1992 SLT 193
13 *Welsh v HMA* page 196L
14 *Welsh v HMA* page 197D

fingerprint evidence is supported by theory and statistics is discussed in chapter 41.[15]

31.10. Writing in 1999, the Canadian authority on fingerprint evidence, David Ashbaugh, referred to the fact that few "identification specialists" were challenged in court and he observed: "Legal counsel shied away from dwelling on a science that was considered exact and infallible, a belief that was difficult to dispel without adequate and structured literature being available. Most challenges were haphazard at best, usually ill-prepared, and often confusing. The majority were doomed to fail. Each failure further entrenched the infallibility of the science."[16]

R v McNamee and *R v Buckley*

31.11. By 21 April 1999 (when the trial in *HMA v McKie* commenced) there had been discussion in the courts of England and Wales about the admissibility of evidence where a fingerprint examiner was satisfied about identity but there were less than 16 matching points. Cases referred to in *R v Buckley*[17] show that by 1995 the prosecution in England and Wales was seeking to lead fingerprint evidence even though it did not meet the 16-point standard. Between 1995 and 1998 evidence was admitted based on twelve similar ridge characteristics, and in one case about two fingerprints which had eight and fourteen characteristics respectively.

31.12. On 30 April 1999, the Court of Appeal in *R v Buckley* refused an appeal in which there was a challenge to the admissibility of fingerprint evidence based on nine matching ridge characteristics. Rose LJ noted the potential introduction of the non-numeric approach and provided guidance for the assistance of judges who had to consider the admissibility of fingerprint evidence based on less than sixteen points. That guidance uses eight points as the lower limit of admissibility "save in wholly exceptional circumstances", with discretion to admit evidence based on more than eight points depending on a number of criteria. The evidence of Mr Sheppard[18] supports the view that *Buckley* did not have a significant impact on practice in England and Wales, probably because of the move to a non-numeric approach, but it was cited by the Court of Appeal in 2011 in *R v Smith*[19] at least as part of the historical narrative. The decision in *Buckley* did not impact on *HMA v McKie* because it was probably unknown at the time in Scotland and, in any event, the Crown relied on the combination of 17 points in the SCRO productions for Y7.

31.13. Also, by the date on which the trial in *HMA v McKie* commenced, there had been one high profile case in England involving a conflict in fingerprint evidence. The case was *R v McNamee*,[20] decided by the Court of Appeal on 17 December 1998.

31.14. Mr McNamee had been convicted of conspiracy to cause explosions in connection with the Hyde Park bombing in 1982. The evidence against him included three fingerprints found on tape and a battery in various caches of bomb making

15 At para 8ff
16 Ashbaugh D. R. Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology. Boca Raton, Florida: CRC Press, 1999. Page 4.
17 [1999] EWCA Crim 1191, 163 JP 561 CA
18 Mr Sheppard 7 July pages 180-182
19 [2011] EWCA Crim 1296 and [2011] 2 Cr App R 16
20 [1998] EWCA Crim 3524

equipment found after the bombing. The Court of Appeal records that two defence experts examined the prints before trial but they were not called to give evidence, the inference being that they did not challenge the Crown's identification. At trial there was no challenge to the identification of any of the three prints and Mr McNamee sought to explain the presence of his prints by evidence that he might innocently have come in contact with the items during the course of his work. He was convicted. At his first appeal the court allowed fresh evidence to be led relating to the identification of the mark on the battery. At that stage the defence instructed two experts, Mr Waghorn and Mr Swann. Initially Mr Waghorn spoke to only ten matching characteristics but in cross-examination, he agreed with the 16 matching points that the Crown witness had shown on enlargements prepared for the appeal. Mr Swann was not called to give evidence and the appeal was refused. In due course the case was referred back to the Court of Appeal by the Criminal Cases Review Commission after the prints of another man, a convicted bomber, were found on the bomb making materials. The second appeal was argued on a number of grounds including fresh evidence relating to the identification of one of the marks, the mark on the battery. The Appeal Court heard conflicting evidence from 14 fingerprint experts about the analysis of the mark, including some who were witnesses to this Inquiry.[21] The question for the Appeal Court was whether the verdict was safe and that involved considering what the jury would have made of the fresh evidence. The court found it impossible to say with confidence what conclusion the jury would have reached on the fingerprint evidence. In addition to the doubt about the fingerprint evidence the court held that there had been a material non-disclosure by the prosecution on another point and these two matters combined justified the conclusion that the verdict was unsafe and the second appeal was allowed and the conviction set aside.

31.15. The basis of the decision in *R v McNamee* was that the court was uncertain what conclusion the jury would have reached on conflicting testimony. The court did not make a positive finding of misidentification. That decision, which has never been reported in any series of law reports, understandably appears to have had no bearing on the McKie case.

Routine evidence: sections 280 and 281 of the Criminal Procedure (Scotland) Act 1995

31.16. As discussed in chapter 30, the form of the fingerprint reports prepared by the SCRO officers for the trials in *HMA v Asbury* and *HMA v McKie* and the revised style now used in current practice[22] were influenced by the statutory provisions in sections 280 and 281 of the 1995 Act.

31.17. The history of these provisions is of some relevance, as it correlates with evidence to the Inquiry that fingerprint officers had to appear less often in court after they were introduced. They date back to section 26 of the Criminal Justice (Scotland) Act 1980, though what is now section 280(4) of the 1995 Act initially only applied to summary trials. It was extended to solemn proceedings in 1995 by section

21 Mr Swann and Mr Leadbetter gave evidence for the appellant and Mr Mackenzie and Mr Dunbar gave evidence for the prosecution.

22 CO_4109

22(3) of the Criminal Justice (Scotland) Act 1995 and the provisions came to be consolidated in the Criminal Procedure (Scotland) Act 1995.

31.18. The rationale for the introduction of section 26, noted in chapter 30,[23] is also instructive: "This section contains a number of provisions designed to make it easier for the prosecutor to establish certain matters which are rarely in dispute…"[24]

Commentary

31.19. Prior to *HMA v McKie,* fingerprint evidence was rarely, if ever, challenged in Scotland and had come to be treated as 'routine'. Statute had, as a consequence, exempted fingerprint evidence to some extent from the full rigours of the legal requirements otherwise applicable to expert evidence. However, the Glasgow office of SCRO at that time followed an exceptional practice of producing charted enlargements to illustrate 16 points in coincident sequence for Y7, QI2 Ross and certain other marks involved in *HMA v Asbury* and *HMA v McKie*. This provided some transparency and, in the event, was sufficient to enable Mr Wertheim and Mr Grieve to take issue with the conclusion in relation to Y7 and, as in *HMA v Rolley*, the charted enlargements were available to the jury for them to assess the evidence that the witnesses gave.

31.20. There was a second compounding factor at play in the build up to *HMA v Asbury* and *HMA v McKie*. Fingerprint evidence had come to carry the aura of 'infallibility'. It may be difficult to perceive any substantial distinction between 'infallibility' and 'practical infallibility' and the more relevant consideration may be that since the case of *Hamilton* in 1933 the Appeal Court in Scotland had endorsed fingerprint evidence as carrying a presumption of truth. In that respect Scotland was not alone.

31.21. With the benefit of the subsequent insight provided by Simon A. Cole in an article entitled 'Is Fingerprint Identification Valid? Rhetorics of Reliability in Fingerprint Proponents' Discourse'[25] and other modern sources it is possible to recognise now that there were practical limitations to the two propositions spoken to by the fingerprint experts in *Hamilton:* (1) no case of identity in the ridges of the skin of the fingers of two different persons has been discovered; and (2) over a period of time of significant duration, the fingerprint method of identification has never once proved to be unreliable. Even if those two propositions were correct in 1933, given the complex judgments that fingerprint examiners have to make during a comparison, it does not necessarily follow that the fingerprint examiners who are giving evidence in any particular case have been able, reliably, to observe and interpret a sufficient number of matching characteristics in mark and print to prove that a particular individual is the donor of the particular crime scene mark.[26] In any event, the second of those propositions has been overtaken by events: instances of erroneous identification have occurred.

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23 Para 50

24 Annotation to section 26 of the Criminal Justice (Scotland) Act 1980 in 1980 Current Law Statutes Annotated, volume 2 (Sweet & Maxwell)

25 Cole S.A. Is Fingerprint Identification Valid? Rhetorics of Reliability in Fingerprint Proponents' Discourse. Law & Policy, 2006; 28(1): 109-135

26 See chapter 2 para 30ff

31.22. Among the authorities to discuss this matter more recently was the English Law Commission. The Commission does not directly address the reliability of fingerprint evidence but such evidence is of a kind that involves the combination of a scientific base and experience-based application.[27] The Law Commission suggests that there will be experience-based lines of expert evidence where the wealth of experience possessed by the expert is likely to provide a sufficient guarantee of reliability in the round for much of the expert evidence founded upon it[28] but it may be added that this ought to proceed on a proper understanding of the underlying basis of the expert's opinion.

31.23. In the case of fingerprint evidence the scientific underpinning is limited to the first of Cole's two propositions: i.e. that no two individuals have been known to share the same fingerprint, hence fingerprints can provide a reliable basis for identifying an individual.[29] The reliability of evidence of identification given by fingerprint examiners in any particular case calls for the assessment of a complex mix of distinct experience-based or subjective judgments, including (1) whether the patterns of ridge detail in mark and print are in 'agreement' and (2) whether the quality and quantity of the matching characteristics are 'sufficient' to point uniquely to the donor of the print as the maker of the mark. The reliability of fingerprint evidence depends on the robustness, and ultimately on the accuracy, of those judgments.

31.24. Four of the generic criteria that the Law Commission recommends for the assessment of the reliability of expert evidence generally seem particularly apt to the assessment of fingerprint evidence:

> "(a) The extent and quality of the data on which the opinion is based, and the validity of the methods by which they were obtained.
>
> (b) If the opinion relies on an inference from any findings, whether the opinion properly explains how safe or unsafe the inference is (whether by reference to statistical significance or in other appropriate terms).
>
> (c) If the opinion relies on the results of the use of any method (for instance, a test, measurement or survey), whether the opinion takes proper account of matters, such as the degree of precision or margin of uncertainty, affecting the accuracy or reliability of those results.
>
> (d) The extent to which any material upon which the opinion is based has been reviewed by others with relevant expertise (for instance, in peer-reviewed publications), and the views of others on that material."[30]

27 The Law Commission. Expert Evidence in Criminal Proceedings in England and Wales, The Stationery Office, 2011, LC325, paras 3.46-47. URL: http://www.official-documents.gov.uk/document/hc1011/hc08/0829/0829.pdf

28 The Law Commission. Expert Evidence in Criminal Proceedings in England and Wales, 2011, LC325, para 5.79.

29 See chapter 2 para 30ff

30 The Law Commission, Expert Evidence in Criminal Proceedings in England and Wales, 2011, LC325, Schedule Part 1, para 1, to draft Bill at pdf page 166

Fingerprint evidence: unable to exclude

31.25. Traditionally in Scotland fingerprint officers have given evidence only if they have been able to reach one of two positive findings: either (1) that a specified person has been identified as the maker of the mark; or (2) that a specified person has (or specified persons have) been excluded as its maker. The Inquiry has heard evidence that some fingerprint officers in England have given evidence on an intermediate finding, where there is no material difference between mark and print so the donor of a known print cannot be excluded as the maker of the mark; but insufficient matching ridge characteristics to satisfy the officer that the mark can be uniquely identified as that of any particular person. That intermediate finding could be expressed in one of two ways: (a) the ridge characteristics in the mark are *consistent* with those in the print and therefore the donor of the known print is one of a number of persons who could have made it; or (b) that donor *cannot be excluded* as the maker of the mark. The second of those formulations has been termed 'unable to exclude' evidence and evidence of that kind has been led in England.[31]

31.26. I am advised that there is no rule of law that prohibits such evidence being led in a Scottish case. It could, in theory, provide corroboration for the prosecution; and such evidence might be of assistance to the defence, for example, if it supported the incrimination of another person. That is not to say that such evidence would invariably be admissible. The problem is that there is no statistical data showing the incidence of combinations of ridge characteristics in the population and therefore no scale by which to assess the weight to be placed on it.[32]

31.27. 'Unable to exclude' conclusions are considered further in chapter 38.

31 e.g. Mr Chamberlain 18 November 2009 pages 105-106
32 e.g. Mr Pugh 24 November 2009 pages 12-14

CHAPTER 32

THE SIXTEEN POINT STANDARD

Introduction

32.1. At the time of the Asbury and McKie prosecutions the Scottish criminal justice system was working to the '16-point standard' for identifications to be taken to court. This chapter describes this standard, including its history and its use in Scotland.

32.2. An account of the genesis of the 16-point standard was given in the report by Evett and Williams, 'A Review of the Sixteen Points Fingerprint Standard in England and Wales.'[1] Though this was written from the vantage point of England and Wales, it would appear from the overlap with the corresponding narrative in the HMICS report[2] that the historical outline is the same in Scotland.

A history of the 16-point standard

32.3. The first fingerprint bureau in the UK was established at New Scotland Yard in 1901.

32.4. Initially a 12-point standard was used in Great Britain until 1924 when the 16-point standard came to be recommended by New Scotland Yard following review of an illustration in a publication by Alphonse Bertillon, in France in 1912, which had been sent to New Scotland Yard by the New Zealand police. That illustration showed prints from two different individuals, masked in such a way as to obscure differences, but with 16 points of similarity marked on the revealed areas of the prints. New Scotland Yard doubted six of the points of similarity but accepted that ten were present. Given that the illustration was understood to show that two different individuals could share ten common points, it was decided that the 12-point standard was not high enough and it was raised to 16.

32.5. Until 1953, despite the recommendation by New Scotland Yard, practice varied and some fingerprint experts were prepared to give identifications on less than 16 points. In 1953 the Home Secretary arranged a meeting following a trial in which an expert gave evidence identifying two prints, one having 12 points of similarity and the other 15. The defendant was convicted but the Home Secretary was concerned that if evidence was given of identification on less than 16 points the defence might successfully challenge the evidence, thereby tending to discredit fingerprint evidence as a whole. The Inquiry was provided with a contemporaneous note of that meeting[3] and the relevant parts of the conclusion were as follows:

> "The meeting was not concerned with the number of points of resemblance which are accepted as adequate for the purposes of ordinary police investigation.

1 CO_1375
2 SG_0375
3 CO_1599 pdf pages 33-34

The following conclusions were reached:-

(1) It is desirable that a common standard should be observed by all forces whose officers give evidence in court about fingerprint identification in order that there should be little risk of such evidence being challenged.

(2) In case of a single print this standard should be a minimum of sixteen points of resemblance.

(3) In the case of two prints which did not obviously belong to the same hand, it would be permissible to offer fingerprint evidence if there were a minimum of ten points of resemblance on each print.

(4) It would be unwise to offer fingerprint evidence in the case of a single print with less than sixteen points of resemblance even though other strong corroborative evidence was present."

32.6. The exclusion of "ordinary police investigation" work confirms that the standard was aimed at the evidence that might be led in court or, as Evett and Williams put it, "court quality identifications". There were originally two national standards relevant to court: the 16-point standard for a single print and the "two ten" rule in the case of multiple prints from different fingers belonging to the same individual.

32.7. From 1984, at least in England and Wales, the court standard became subject to what became known as the 'dire and crucial' exception. The National Conference of Fingerprint Experts[4] agreed that evidence might be given of an identification on less than 16 points in a case of particular importance, provided that the evidence came from an expert of long experience and high standing and it might have been necessary for the expert to say that, though he was personally satisfied as to the identification, it did not meet the national standard. This 'dire and crucial' exception appeared to apply only to serious crimes.

32.8. The exclusion of contributions towards ordinary police investigations led to a practice that some witnesses to the Inquiry referred to as the 'strong suspicion' exception. Fingerprint examiners would report to the police 'non-provable' identifications based on less than 16 points in coincident sequence, the object being to give the police a lead in their investigation while recognising that, save in cases falling within the 'dire and crucial' exception, the fingerprint examiner could not take that evidence to court. Evett and Williams reported that the lower threshold for 'strong suspicion' was generally eight points but that the Metropolitan Police used a threshold of ten. The justification for the use of eight points derived from the conclusion of the 1978 National Conference of Fingerprint Experts:

> "There was general agreement amongst fingerprint officers that if there were eight points of resemblance present, that was sufficient to establish identity beyond all reasonable doubt."[5]

4 The meeting in 1953 between representatives of major fingerprint bureaux, the Director of Public Prosecutions and the Home Office also decided on an annual meeting of representatives of all fingerprint bureaux. Evett & Williams noted that The National Conference of Fingerprint Experts no longer existed - CO_1375.

5 CO_1375 pdf page 11

Equal certainty

32.9. To the lay person it might be thought that there would be variations in the degree of confidence that a fingerprint examiner would have had regarding the certainty of his conclusion as between (a) an identification to the legal standard of 16 points and (b) a finding of 'strong suspicion' based on a lesser number of points as low as eight. That was not the case. The distinction between the two was a matter of legal practice, not a reflection of fingerprint practice. Evett and Williams emphasised that it was "important to understand that a fingerprint expert regards any identification as a certainty" and that was whether he had reached that conclusion on 16 points or less.[6] That is consistent with the fact that the 1978 National Conference of Fingerprint Experts' conclusion was that eight points were sufficient to establish identity *beyond all reasonable doubt*.

Lack of substantive base for the 16-point standard

32.10. Evett and Williams reported in 1989. As part of their study they located a copy of the original Bertillon publication.[7] By scrutinising better quality copies of the prints than had been available to New Scotland Yard they found that the prints had been touched up. Professor Margot of Lausanne University confirmed that, of the ten points originally accepted by New Scotland Yard, five had in fact been altered by the addition of ink lines. This finding coincided with an article published in 1914 by Locard who said that "certain of the points are patently fabricated."

32.11. Consequently, Evett and Williams concluded: "The original decision to adopt a standard of 16 points at New Scotland Yard was clearly based on incomplete and misleading information."[8]

England and Wales: evidence other than in accordance with 16-point standard

32.12. As noted in paragraph 7, the 16-point standard was not universally insisted upon in English legal practice and Mr Leadbetter confirmed that there were instances in which evidence was led in English courts where 16 points had not been found. He gave an example of one case in which he had been involved where he gave evidence of identity based on only eight points.[9]

32.13. In that regard reference may also be made to the discussion of the Court of Appeal decision in *R v Buckley* in April 1999 upholding a conviction where the fingerprint evidence was based on nine matching ridge characteristics.[10]

The 16-point standard in Scottish practice

32.14. In 1997 the 16-point standard was the basis of legal practice in Scotland.

32.15. Mr MacPherson's evidence suggests that practice at SCRO mirrored that in England and Wales with the application of the two ten (or '10 and 10') rule, the 'dire and crucial' exception and 'strong suspicion' letters where there were between 10

6 CO_1375 pdf page 30
7 CO_1375 contains a reference to the original article: Bertillon, M.A. 'Les Empreintes Digitales' (1912) Archives d'Anthropologie Criminelle de Lacassagne, volume 27, pages 36-52
8 CO_1375
9 Mr Leadbetter 23 October pages 20-22
10 See chapter 31

and 15 points.[11] The threshold of ten for 'strong suspicion' (as opposed to eight) is discussed later in the context of 'eliminations'.

32.16. That may, however, be an oversimplification.

32.17. 'Strong suspicion' letters were issued in Scottish practice but in letters to Crown Office in 1996[12] and 1998[13] SCRO said that they were issued when examiners found between 12 and 15 points.

32.18. In the 1998 letter, written by Mr Mackenzie, it was stated that there had never been a problem for SCRO adhering to the two ten rule, but Mrs Tierney (who started work in SCRO in 2000) told the Inquiry that she was told that it was not the practice to use the two ten rule routinely. She was told to mark any identification having 10 to 15 characteristics with an asterisk and often had casework returned by a verifying expert who would state they had in fact found 16 characteristics. This prevailed until 2004 when, as the training manager, she put forward a paper to Mr Ewan Innes, then Head of SFS, detailing the actual requirements of the 1953 standard and recommending that the practice of asterisking identifications with less than 16 characteristics cease. This was supported by Mr Innes and the practice was subsequently changed.[14]

32.19. Mr Pattison made enquiries and found that 'dire and crucial' was not a term used by either COPFS[15] or the police.[16] Neither Mr Mackenzie nor Mr Dunbar could give any specific example of a case in which it had been applied in Scotland.[17] That is consistent with correspondence in 1994 in which SCRO plainly stated that its experts would not give evidence in court where fewer than 16 points were found, not even in a case where the procurator fiscal was showing interest in such evidence.[18] Mrs Tierney spoke of one case reported to the procurator fiscal with less than 16 points when she worked in SCRO,[19] which would be after May 2000.[20]

32.20. To complete the survey of practice in Scotland, it is necessary to note that SCRO examiners also spoke of 'eliminating' a mark as having been made by a specific individual, an 'elimination' being a finding that could be made on less than 16 points.

The detail of the 16-point rule

32.21. The Inquiry heard evidence of some variations in practice as to the details of the 16-point standard.

11 FI_0055 para 80 Inquiry Witness Statement of Mr MacPherson
12 CO_4340
13 CO_4306
14 FI_0152 paras 13-15 Inquiry Witness Statement of Mrs Tierney
15 FI_0195 para 14 Inquiry Witness Statement of Mr Pattison
16 CO_4431
17 Mr Mackenzie 2 October page 129, Mr Dunbar 6 October pages 61-62
18 CO_1599 pdf pages 62-65 (and see also pages 6-9)
19 Mrs Tierney 12 November pages 162-163
20 FI_0152 para 2 Inquiry Witness Statement of Mrs Tierney

The definition of a characteristic

32.22. The 16-point standard operated relative to second level detail.[21]

32.23. The HMICS report recorded a lack of consistency worldwide on the description of characteristics that could affect the application of this standard. Thus, some practitioners might characterise the same feature as either (a) a short ridge (either end being a ridge ending and hence counting as two points) or (b) an island (one point).[22]

32.24. SCRO witnesses explained that examiners were taught that there were essentially two characteristics, bifurcations and ridge endings, with various permutations such as lakes, and islands or independent ridges.[23] Mr MacPherson told the Inquiry in his oral evidence that SCRO counted some features such as a lake or island as two characteristics whereas he understood that they would count as one in England and Wales.[24] Mr Geddes said that he did not know of a difference between Scotland and England until the Inquiry, though he was aware of the Netherlands regarding two features as one point.[25]

32.25. Mr Sheppard was asked about any difference in English practice and his reply was that a lake and an island each ordinarily counted as one characteristic but each could be counted as two if necessary to complete 16 points.[26]

Unexplained differences

32.26. The Evett and Williams report stated that at one time the standard for identification was "that mark and print should exhibit at least 12 points (characteristics, or minutiae) of agreement, and, of course, *no points of disagreement*)." (Emphasis added). Evett and Williams then explained that the standard was raised to 16. The inference to be drawn from the Evett and Williams report would appear to be that a 'point of disagreement' would be fatal.[27]

32.27. Notably, the formulation of the 16-point standard in the notes of the Home Office meeting in 1953 contains no explicit reference to points of disagreement or differences (explained or unexplained) but Mr Sheppard gave this fuller formulation of the rule:

> "the common practice and the common application of rules, although not written down rules, is that to provide evidence in a court of law you must provide 16 ridge characteristics in coincident sequence with none in disagreement."[28]

32.28. At one level this formulation was agreed by the SCRO fingerprint examiners, including Mr MacPherson.[29] Mr Dunbar indicated that for an officer to be satisfied

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21 See chapter 2 para 11ff
22 SG_0375 para 5.11.2
23 Mr Geddes 26 June pages 6-7 and Mr MacPherson 27 October page 17
24 Mr MacPherson 27 October page 15
25 Mr Geddes 26 June pages 15, 18
26 See chapter 10 para 110
27 e.g. see Champod C. and Chamberlain P. Fingerprints, in: Fraser J. and Williams R. (eds) Handbook of Forensic Science, Willan Publishing, 2009 page 72
28 Mr Sheppard 8 July page 137
29 Mr MacPherson 27 October page 131

in relation to any comparison, "there must be no areas of disagreement that cannot be explained."[30] Mr Geddes said: "It is when the ridge characteristics fall in sequence and agreement, with none in disagreement, that I know I have an identification."[31]

32.29. On closer scrutiny, however, there came to be a subtlety to the evidence of the SCRO witnesses. A more accurate formulation of the 16-point standard is probably that there should be no *unexplained* differences and as discussed in chapter 28, the Inquiry heard evidence from some fingerprint examiners that the presence of 16 characteristics in coincident sequence proved identity beyond any doubt. Accordingly, they reasoned that any differences must have some explanation, even though the examiner was not aware what the specific explanation was; and by that circular process of reasoning effectively restored the formulation of the rule back to the 1953 statement of it, with no significant role ascribed to differences.

Identifications and eliminations

32.30. At SCRO there was a distinction between 'identifications' and 'eliminations'. An 'identification' related to identifying a mark as belonging to a suspect, and 'elimination' to a person who had a reason to be at the locus of the crime (for example the victim or a police officer involved in the investigation).[32]

32.31. An 'identification' would generally have to be made to the 16-point standard. An 'elimination' could be made on a lesser number of common points. Mr Mackenzie said that this had been in place when he joined the bureau in 1967.[33]

32.32. Mr Stewart said that there were two criteria. Normally in a volume crime case, an examiner would be willing to eliminate on a lower number than 16, once he had established identity. In a serious case, it was down to the examiner in charge of the case to decide whether to apply the 16-point standard even to eliminations or to apply a lesser standard to them. He was the one who had the information to decide whether 'elims' might be more significant in the case than suspects, for example.[34]

Number of points for an 'elimination'

32.33. As at 1997 an examiner making an 'elimination' of a mark had still to satisfy himself or herself as to the identity between mark and print but, as already explained in paragraph 9 a fingerprint examiner would often reach that conclusion to a level of personal certainty on less than 16 points. Indeed, an examiner could arrive at a personal conclusion on identity before counting the points.[35]

32.34. Evidence varied regarding the personal threshold for an 'elimination'.

30 FI_0053 para 71 Inquiry Witness Statement of Mr Dunbar
31 FI_0031 para 22 Inquiry Witness Statement of Mr Geddes
32 FI_0039 paras 26 and 27 Inquiry Witness Statement of Ms McBride
33 FI_0046 para 53 Inquiry Witness Statement of Mr MacKenzie
34 Mr Stewart 5 November page 28
35 Ms McBride 6 November page 137

32.35. Mr Graham, who once worked in the Edinburgh bureau, put it at more than five or six;[36] Mr Swann at eight;[37] and Mr Leadbetter had given evidence in court based on eight.[38]

32.36. Mr Dunbar said that for an elimination "the number of characteristics in sequence and agreement was probably viewed as somewhere around eight", but for quality assurance purposes he did not regard a strict numeric standard as being the appropriate approach, rather it was for the officer to be satisfied that the mark and print were made by the same individual.[39] Ms McBride's evidence was the same.[40]

32.37. Mr Foley said eight to ten depending on the quality of the mark, if he had to go for one number it was ten.[41] Mr Bruce said a minimum of ten (also speaking of a minimum of double figures but he did not know if that was official) unless it was "ultra clear".[42]

32.38. Mr Padden's recollection was that the threshold was 12.[43]

32.39. It may be fair to infer that Mr Padden's recollection is probably mistaken given that his colleagues consistently spoke to a lower number. The variations among the other witnesses, ranging from eight to ten, probably reflect the fact that the number of characteristics was an irrelevance[44] or at the very least secondary to the nature of the characteristics and the relationship between them.[45]

36 Mr Graham 9 July pages 65-70
37 Mr Swann 21 October page 41
38 Mr Leadbetter 23 October page 21
39 FI_0053 para 70 Inquiry Witness Statement of Mr Dunbar
40 Ms McBride 6 November page 98
41 FI_0051 para 7 Inquiry Witness Statement of Mr Foley
42 Mr Bruce 10 July pages 62 and 71-72
43 Mr Padden 23 June pages 63-64
44 Mr Geddes 26 June page 24
45 Mr Geddes 26 June pages 9, 23, 28ff, 39ff, 1 July page 18ff

CHAPTER 33

THE MOVE TO THE NON-NUMERIC 'STANDARD' IN SCOTLAND

Introduction

33.1. The 16-point standard was under review in Scotland from 1994 but it was not until 4 September 2006 that the requirement for a set minimum number of common characteristics was abandoned in favour of what is commonly known as 'the non-numeric standard'. That changeover had been implemented in England and Wales in 2001.[1]

Reviews in England and Wales

33.2. The 16-point standard was the subject of review by the Home Office in 1978 with representatives of the Scottish Criminal Record Office and Crown Office involved as observers.[2]

33.3. The Home Office commissioned a further review for England and Wales in 1988 and that culminated in the Evett and Williams report.[3] Evett and Williams noted that fingerprint examiners could be certain of their conclusion on fewer than 16 points but practice at that time required them to regard findings on eight to fifteen points as "non-provable". The report recorded that the Audit Commission[4] had found that in as many as one-third of provincial bureaux more than 20% of all identifications fell into that category, compared with less than 2% with the Metropolitan Police. On that basis, there was reason to believe that a significant number of identifications were being lost due to the application of the 16-point standard. The report concluded that a rigid numerical standard was unnecessary and irrelevant.

1994: review of the 16-point standard in Scotland

33.4. Crown Office had a Standing Committee on Expert Evidence from 1994 to 2001.[5] This committee was responsible for the Expert Evidence Manual,[6] first published in 1995,[7] which contained guidance on fingerprint evidence. The committee was also responsible for a review of the 16-point standard; and the preparation of draft Lord Advocate's Guidance.[8]

33.5. The first review of fingerprint evidence carried out by the standing committee was in 1994.[9] The background included the reporting to Crown Office of a case under summary procedure in Wick in which 12 points in sequence and agreement had been found but SCRO witnesses were not willing to speak to an identification. The

1 Mr Leadbetter 23 October pages 18-19
2 CO_1599 pdf page 23 - minutes of meeting 18 April 1978
3 CO_1375
4 The Audit Commission for Local Authorities in England and Wales
5 FI_0114 paras 47, 49 and 57 Inquiry Witness Statement of Mr Pattison
6 CO_4342
7 FI_0114 para 48 Inquiry Witness Statement of Mr Pattison
8 FI_0114 para 59 Inquiry Witness Statement of Mr Pattison
9 FI_0114 paras 51-53 Inquiry Witness Statement of Mr Pattison

point may, however, have been raised with Crown Office earlier in that same year in another context.[10]

33.6. The standing committee prepared a report to the Crown Agent in August 1994 and recommended:

- Where the prosecution relied on fingerprint evidence alone the 16-point standard should continue to apply. The degree of certainty afforded by the application of this standard and the consequence that it rendered challenge by the defence "virtually impossible" were the principal considerations justifying this recommendation.

- Where there was other evidence implicating the accused the police should be instructed to report to the procurator fiscal any case in which eight points of similarity were found and it would then be a matter for the procurator fiscal to decide the evidential value of that finding. To assist the procurator fiscal to make that assessment the police were to be encouraged "to report on the quality as well as the numerical quantity of the findings, and to indicate how rare/common they are."

33.7. The eight point lower threshold derived from the 1978 agreement among fingerprint experts that it was the number of characteristics sufficient to establish identity beyond reasonable doubt.[11]

33.8. The committee's understanding was that the number of cases where eight to fifteen points of similarity was found was very small ("no more than a handful of cases" each year)[12] but, nonetheless, it was critical of the unwillingness of fingerprint examiners to give evidence of identity to a standard lower than 16 points, in part arguing that this attitude was based on a misunderstanding of "the purpose and value of their evidence in cases where there is evidence from another source implicating the accused."[13] The committee also observed that this had implications for disclosure to the defence,[14] presumably thinking of a case in which there were eight to fifteen points of similarity between the latent print and the fingerprint of, for example, a potential incriminee.[15]

33.9. The report was the subject of internal discussion in 1994-1995.[16]

10 See memo by W. F Torrance to the then Home Depute (now Lord Bonomy),10 February 1994, CO_1599 pdf page 10
11 CO_4427 para 2.6
12 CO_4427 para 2.3
13 CO_4427 para 2.8
14 CO_4427 para 2.5
15 Incrimination is a defence that the crime was not committed by the accused, but by another person, the incriminee.
16 CO_4387 - Manuscript note of the Lord Advocate (Rodger) to a memo by the Home [Advocate] Depute dated 27 September 1994 and CO_4362 - Minutes of the meeting of the Standing Committee on Expert Evidence dated 5 May 1995

Lord Advocate's draft guidelines

33.10. Mr Pattison stated that the Lord Advocate's draft guidelines were under consideration from 1995 but were never issued and subsequently were overtaken by events.[17]

33.11. Draft guidelines[18] had been produced by March 1995 and appear consistent with the 1994 report. In particular, the guidelines would have required reporting of the finding of a smaller number of points of similarity than 16, noting that in some instances that evidence might be relevant to the defence and equally that in other cases the Crown might wish to use fingerprint evidence in order to show consistency or inconsistency of the source of the fingerprint impression.[19]

33.12. In 1995 the eight Scottish police forces and SCRO debated the draft guidelines and produced a response confirming that all Scottish fingerprint bureaux were prepared to express an opinion on marks yielding less than the existing standard and that more emphasis should be placed on the quality of the mark rather than a specific number of characteristics.[20]

33.13. A sub-group of the standing committee worked on the revision of the draft guidelines and circulated a revised draft in March 1998.[21]

33.14. The draft of the guidelines sought to make two changes:

- to remove the need for a minimum of 16 matching characteristics to be found before there could be a positive finding of identity (i.e. to move to a non-numeric approach);[22] and
- to extend the range of evidence that fingerprint examiners would give to include an opinion whether the mark was at least consistent with that of a known individual, even if it could not be said positively to be identical: "Where fingerprint officers are not satisfied that a comparison exists but there are positive indications that one may exist and in particular no contra indications, they should express an opinion as to the likelihood of common origin of the questioned and known impressions."[23] There was no discussion of how fingerprint officers would assess "the likelihood of common origin". (In this Report this type of evidence is referred to shortly as 'unable to exclude' evidence.)

33.15. The Lord Advocate (Lord Hardie) approved a draft of the guidelines on 2 September 1998.[24]

33.16. The draft guidelines were revised in 1999 but continued to pursue the same two changes.[25] In the case of evidence of consistency, a letter dated 21 September

17 FI_0114 para 64 Inquiry Witness Statement of Mr Pattison
18 FI_0114 paras 60-63 Inquiry Witness Statement of Mr Pattison
19 CO_4335 and CO_4309
20 See CO_4375
21 CO_4308
22 CO_4310 para 3
23 CO_4310 para 6
24 CO_4424
25 CO_4405 and CO_4406

1999[26] indicates that Crown Office was interested in evidence that any mark was consistent with, or inconsistent with, the fingerprints of the accused. However, the Crown was not expecting fingerprint examiners to go further than an expression of "consistency" by, for example, giving an opinion as to the probability of a match.[27]

33.17. In relation to the non-numeric approach, the 1999 draft stated that "fingerprint officers of suitable experience and expertise should be able to express conclusions as to the identity of marks where they are satisfied of the common origin of fingerprint impressions and known fingerprints." It went on to prescribe that "An appropriate training programme, required standards of competence, auditing and quality assurance must, however, accompany any departure from the 16-point standard to ensure that the confidence that fingerprint evidence has traditionally enjoyed is not compromised."[28]

33.18. There were conflicting expectations as to the impact that the guidelines would have on the practice of fingerprint examiners. The minutes of a comprehensive review meeting on 18 August 1999[29] included the following statement: "A move away from the 16-point standard would…require scientists to have a broader based expertise and be more open-minded in their approach." That contrasts with the statement in a covering letter dated 21 September 1999: "what the guidelines endeavour to do is not to change experts' practices in relation to examination of impressions but rather to change their reporting practices."[30]

33.19. On 17 April 2000 Mr Bell of SCRO wrote to Crown Office on the subject of change to the non-numeric system and reported that SCRO had taken cognisance of the willingness of Crown Office to accept evidence which did not meet the 16-point standard and that some cases had been reported on that basis.[31]

33.20. A comprehensive review paper was prepared for submission to the Lord Advocate in June 2000.[32] That said in terms that the McKie case had "stalled progress in this area". The paper recommended that the 16-point standard be retained in less serious cases with consideration being given to non-numeric evidence in more serious cases where the accused had appeared on petition. That inconsistency stemmed from apprehension about "the McKie climate of popular uncertainty about fingerprint evidence" and the desire not to undermine non-numeric evidence by an adverse decision in a low priority case that may not have been properly prepared.

33.21. An internal Crown Office memo dated 17 August 2001 noted that the Lord Advocate accepted the need to move to the non-numeric system but, though the latest draft of guidelines had been approved by the Lord Advocate, they were not issued "because of the SCRO investigation and it was felt that the time was not right to be issuing new guidance about the presentation of fingerprint evidence."[33]

26 CO_4405
27 CO_4407 pdf pages 4-5
28 CO_4406
29 CO_4407
30 CO_4405
31 CO_4399
32 CO_4395
33 CO_4380

33.22. Lord Boyd of Duncansby explained that if the McKie case had not occurred then the change to a non-numeric approach would have been introduced earlier.[34]

HMICS report

33.23. The HMICS report published in September 2000[35] included some recommendations and observations on fingerprint practice and procedures. The matters covered included the need for standards and working practices associated with non-numeric identifications.

33.24. As to standards HMICS proceeded on this proposition: "The application of a standard is very important to maintaining a safe and reliable method of fingerprint comparison. Experience and expertise enables a fingerprint expert to 'know' that a mark has been made by a certain finger but it is necessary that a standard is applied to translate that view into a reasoned argument on which the conclusion can be based. The application of a recognised and accepted standard protects the fingerprint expert from inappropriate pressures and influences and allows the generation of safe and positive conclusions."[36] To that end HMICS recommended the production of a national guidance manual on fingerprint standards and procedures (Recommendation 12).

33.25. Recommendation 15 was that management of the change to the non-numeric standard should be addressed at a very early point by the ACPOS Presidential Review Team. Ancillary observations were made on the changes that might be required in the event of a move to non-numeric identification evidence. HMICS suggested that court reports might require to contain greater detail regarding the fingerprint officer's opinion,[37] with a high standard of documentation being kept in relation to operating standards and procedures.[38] In particular there was seen to be a need to keep working notes[39] recording the expert's findings and reasoning, all in the interests of transparency and accountability.[40]

ACPOS Presidential Review Group

33.26. The Change Management Review Team set up by the ACPOS Presidential Review Group reported in October 2000[41] and broadly echoed the conclusions of the HMICS report.

2002 draft Scottish Fingerprint Standard

33.27. In April 2001 and April 2002 a draft Scottish Fingerprint Standard was forwarded to Crown Office by Fife Constabulary for consideration. This adhered to the 16-point standard, supplemented with exceptions for 10 plus 10 and dire and crucial cases.[42]

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34 Lord Boyd of Duncansby 10 November pages 63-64
35 SG_0375 - The Primary Inspection Report of the SCRO Fingerprint Bureau 2000 published 14 September 2000
36 SG_0375 para 8.1.1
37 SG_0375 para 6.10.2
38 SG_0375 para 8.1.8
39 SG_0375 para 8.16.3
40 SG_0375 paras 8.1.9-8.1.10
41 SG_0522
42 See CO_4389 and CO_4390

33.28. Though the Deputy Crown Agent, Mr Gilchrist, was generally supportive, he argued that fingerprint officers should still report instances where the mark was consistent with the accused's fingerprint even if there were insufficient characteristics to enable an identification to be made.[43]

Introduction of the non-numeric system

33.29. On 4 December 2003 the Justice 2 Committee of the Scottish Parliament wrote to the Lord Advocate regarding the implications of a move to the non-numeric system and in February 2004 the Lord Advocate approved a draft response including the following statement: "Although the decision to adopt such a standard would be a matter for SCRO, clearly, any such move would require to be made in close consultation with the Lord Advocate, who would require to be satisfied that he would be entitled to rely on fingerprint evidence prepared using that standard." [44]

33.30. In the same month the Deputy Crown Agent Mr Gilchrist reported that the Scottish Fingerprint Service was ready to go live with the non-numeric standard, adding: "The Crown Office position has always been one of supporting the introduction of the non-numeric standard. If it had not been for the controversy over the Shirley McKie case, the standard would almost certainly have been introduced by now."[45]

33.31. In June 2005 SCRO submitted to Crown Office a draft implementation plan/ communication strategy document[46] for the move to the non-numeric fingerprint standard in Scotland anticipating that the Lord Advocate's approval would be required to implement the change. The implementation plan canvassed the rationale for the change and identified the key messages to be conveyed when the change was made:

> "Non-numeric is a robust process for fingerprint identification based on quality, processes and procedures, people and training.
>
> The fixed 16 point standard has never been a reality since 1983 when it was permitted to present fingerprint evidence on single identification showing fewer than 16 characteristics if that evidence was considered 'crucial' and 'of dire importance' to the case.
>
> Evidence is available if required on every occasion where identity has been established.
>
> More detail and information is included with reports / statements offered by SFS experts. The new format will include information about all marks on the case.
>
> Experts are able to offer a fuller and more detailed explanation and information on how they come to their conclusions in the identification process when required to do so resulting in a more professional approach.
>
> More easily understood for the court and in particular the jury.

43 See CO_4388
44 See CO_4329 and CO_4330
45 CO_4391
46 See CO_4313 and CO_4314

Non-numeric brings to the fore the scientific basis for the uniqueness of fingerprints and the methodology employed by experts when analysing and comparing fingerprints.

Non-numeric is the accepted format for presenting fingerprint evidence in England and Wales and many countries around the world.

SFS is now fully prepared and ready to adopt the non-numeric standard."

33.32. The O'Dowd report[47] was completed on 24 March 2006 and that report agreed that Recommendation 12 of the HMICS report – the need for a national procedures manual – had been discharged by the combination of the provision of a National Procedures Manual and a Scottish Fingerprint Quality Assurance Manual and the securing of ISO accreditation. As for Recommendation 15 – the management of the change to the non-numeric standard – the O'Dowd report concluded that this had yet to be discharged. Arrangements were in hand but the decision rested with the Lord Advocate as to when this system would be introduced and no decision had (as at that date) yet been made.

33.33. The Scottish Fingerprint Service published its Action Plan for Excellence in April 2006. That plan anticipated the change to the non-numeric system by the end of August 2006.[48]

33.34. A meeting took place at Crown Office on 4 July 2006. The minutes of that meeting[49] were available to the Inquiry. The meeting discussed, among other issues, the format of reports to court. It did not discuss the methodology to be applied in fingerprint comparisons nor the standard that was to be applied.

33.35. The non-numeric system was applied in Scotland from 4 September 2006, since when Crown Office has set no minimum number of points.[50]

33.36. Crown Office circular 8/2009[51] states that the changeover to the non-numeric standard was made with the agreement of COPFS, ACPOS and the Scottish Government. There was no contemporaneous documentation provided to the Inquiry showing the agreement of the Lord Advocate (or COPFS) to the changeover. Mr Pattison advised the Inquiry that the Lord Advocate had indicated in 2005 that he was content, in principle, to accept reports based on the non-numeric system.[52] Mr Pattison also explained that the responsibility for moving to a new standard lay with the SPSA and it was their decision to implement the new standard in Scotland. COPFS agreed to accept reports based on the non-numeric standard.[53] COPFS would not normally have any input into the underlying standards applied by experts.[54] COPFS in general terms placed reliance on SPSA experts on the move to the non-numeric standard.[55]

47 PS_0036
48 SG_0786 paras 4.9-4.11
49 CO_4326
50 FI_0114 para 4 Inquiry Witness Statement of Mr Pattison
51 CO_4109
52 See CO_4428
53 FI_0195 para 15 Inquiry Witness Statement (Supp.) of Mr Pattison
54 FI_0195 para 16 Inquiry Witness Statement (Supp.) of Mr Pattison
55 FI_0195 para 21 Inquiry Witness Statement (Supp.) of Mr Pattison

33.37. The current view of COPFS on the demarcation of responsibility for changes in standards, as expressed by Mr Pattison, was as follows: COPFS would expect to be told if a significant change was proposed in fingerprint evidence or any of the forensic sciences. COPFS would want to be reassured about it and ask questions. However COPFS cannot set the standards, it does not have the expertise to do so.[56]

Crown Office circular and other guidance

33.38. A DVD and explanatory leaflet about the non-numeric approach were prepared by the Scottish Fingerprint Service and copies provided to Crown Office and all procurator fiscal offices in September 2006.[57] Mr Pattison explained that these were intended to alert staff to the change to the non-numeric approach and the implications for the presentation of evidence.[58] The DVD was shown during a hearing of the Inquiry.[59]

33.39. An initial draft of the Crown Office circular was also prepared.[60] The draft circular was discussed with SPSA in early 2009 in order to ensure that it reflected their practices and procedures correctly and the final approved version was issued in March 2009[61] along with consequential changes to COPFS's internal Book of Regulations, Practice Manuals and Precognoscer's Handbook.[62] The circular should have been released to staff earlier but was not due to administrative error.[63]

33.40. Paragraph 6 of the circular states that the change did not affect the manner in which a fingerprint officer makes an identification, the difference being that now a fingerprint officer who has made an identification can give evidence in court irrespective of the number of points of comparison.

33.41. Paragraph 7 records three key features of the non-numeric system:

> "Experts no longer need to establish a fixed number of points of comparison.
>
> Experts can focus on the quality of any points of comparison, rather than the quantity.
>
> Experts should be able to offer a much fuller explanation of the way in which they arrived at their conclusions."

33.42. Despite the third of those points, the report that the experts now prepare (Annex A to the circular)[64] contains no detail beyond the expression of a conclusion as to identity. No photographic enlargements are provided and, instead, it is explained in the circular that the detail is to be secured through precognition of the expert. This is discussed in chapter 37.

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56 Mr Pattison 13 November page 156
57 FI_0114 para 26 Inquiry Witness Statement of Mr Pattison
58 FI_0114 para 27 Inquiry Witness Statement of Mr Pattison
59 11 November page 164
60 FI_0114 para 27 Inquiry Witness Statement of Mr Pattison
61 CO_4109
62 FI_0114 paras 27-32 Inquiry Witness Statement of Mr Pattison ; CO_4110-CO_4114 - Excerpts from the Book of Regulations, Practice Manuals and Precognoscer's Handbook
63 Mr Pattison 13 November pages 167-168
64 CO_4109

Misnomer describing non-numeric as a 'standard'

33.43. The new system is commonly referred to as 'the non-numeric standard' but that is a misnomer. There is no prescribed standard for an identification.

33.44. Witnesses and various texts refer to the necessity for a 'sufficiency' of matching detail before there can be a conclusion of identity but Mr Grigg,[65] Mr Wertheim[66] and the Metropolitan Police[67] all agreed that there is no objective test of 'sufficiency' for uniqueness. There is no benchmark standard.[68] The definition of sufficiency relies on the subjective conclusion in the examiner's mind.[69] It is expressed in this way by Professor Champod and Mr Chamberlain:

> "In the absence of dissimilarities, the examiner will weigh the corresponding features in reference to the standards for identification... In a nutshell, the individualisation will be reached when the examiner observes a level of agreement (across the three levels of legible features) that exceeds the highest level of correspondence he observed through his/her training and experience in comparisons involving non-matching entities. An identification is then concluded when the mark shows sufficient ridge quality (clarity) of friction ridges in agreement with the print so that the probability for such a match to happen if a print from another person is submitted is deemed to be impossible." [70]

33.45. That passage was discussed with Mr Chamberlain. While he confirmed that each examiner formulates a personal threshold based on previous observations, this should not be equated to each examiner having a personal numeric threshold. Mr Chamberlain does not have a numerical threshold because he takes into account the configuration of the characteristics as well as the number.[71] That was consistent with the evidence of Mr Grigg who said that it is not possible to say that a particular number of points will be sufficient in every case. It may also depend upon the distribution of different characteristics as some are much rarer than others and would have a greater impact on the thought process of the examiner. Mr Grigg's advice was to look for differences as opposed to similarities. If an examiner cannot find any differences and finds sufficient similarities, he has individualised that mark.[72]

33.46. The Metropolitan Police stated that threshold values are developed through training and experience and monitored and challenged by quality assurance and peer review.[73] Miss Hall, Fingerprint Operations Manager, said that their "tipping point" research showed that in some cases there are variations between examiners as to the amount of information required to effect an identification.[74]

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65 Mr Grigg 29 September pages 14-15
66 Mr Wertheim 22 September page 34
67 MP_0008
68 Mrs Tierney 12 November pages 67-68
69 Mr Wertheim 22 September page 34
70 Champod C. and Chamberlain P. Fingerprints, in: Fraser J. and Williams R. (eds) Handbook of Forensic Science, Willan Publishing, 2009, page 69
71 Mr Chamberlain 18 November page 39 and Mr Pugh 24 November pages 33-34
72 Mr Grigg 29 September pages 13-15
73 MP_0008 pdf page 28
74 Miss Hall 24 November pages 65-66

33.47. The absence of any personal numerical threshold was unequivocally demonstrated by the fact that no fingerprint examiner, asked what the minimum number was, gave a definitive reply. The response given by Mr Geddes is representative: "I would have to say show me the mark."[75] That is the stock answer that trainees are currently taught to give in mock trials.[76]

33.48. This is discussed by Ashbaugh in his book Quantitative-Qualitative Friction Ridge Analysis. He writes that "When a print is analyzed by a different identification specialist the threshold of what is sufficient will fluctuate within parameters"[77] and that "The opinion of the individualization or identification is subjective",[78] founded on personal knowledge, ability and experience.

> "How much is enough? Finding adequate friction ridge formations in sequence that one knows are specific details of the friction skin, and in *the opinion* of the friction ridge identification specialist that there is sufficient uniqueness within those details to eliminate all other possible donors in the world, is considered enough."[79]

33.49. 'Sufficiency' is a subjective judgment of the individual examiner. It is an empirical judgment based on training and experience shaped by the thresholds to which the examiner operates and not on any validated scientific data on the incidence or rarity of combinations of ridge characteristics. More succinctly, as Mr Zeelenberg put it, sufficiency is left to the discretion of the examiner.[80] Professor Champod adopted the description by Stoney that the conclusion is 'a leap of faith'.[81] At some point, the examiner has identified so many corresponding features that he becomes subjectively convinced that the chance of duplication is zero. He went on:

> "This little jump from a probabilistic position to certainty escapes the science. It has been accepted by courts for years but it escapes a logical argumentation…at some point the chances are considered to be so reduced that, for ease of discussion, it will be declared that an identification has been achieved and the chance of finding someone else on earth with the same features will be declared to be zero hence the 100 per cent certainty."[82]

Impact on fingerprint examiners' method of work

33.50. As noted in paragraph 18, papers made available to the Inquiry show conflicting expectations whether the move to 'the non-numeric standard' would alter the manner in which fingerprint practitioners carried out comparisons or merely changed their reporting practices.

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75 Mr Geddes 26 June page 27 and also page 125
76 Mr McGinnies 4 November pages 78-79
77 Ashbaugh, D.R. Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology, Boca Raton: CRC Press, 1999, page 101
78 Ashbaugh, D.R. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 103
79 Ashbaugh, D.R. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 103
80 Mr Zeelenberg 8 October page 18
81 Champod, C., Lennard, C., Margot, P and Stoilovic, M. Fingerprint and Other Ridge Skin Impressions. Boca Raton: CRC Press, 2004, page 33
82 Professor Champod 25 November page 83, Stoney, D.A. What made us ever think we could individualize using statistics? Journal of the Forensic Science Society, 1991, 31(2): 197-199

33.51. Mr Padden,[83] Mr Foley[84] and Mr Geddes[85] all spoke with one voice: the change did not affect the manner in which they did their job. Mr Padden explained that conclusions are not articulated in the same way, third level detail now entering in to the equation, and the paperwork is different, but his working processes are the same.

33.52. At the most practical level it is significant to note that Mr Geddes was unable to sign up to the identification of Y7 in 1997 because he could not then satisfy the 16-point standard but he was unequivocal that if he had had the freedom of the non-numeric 'standard' he could have been a signatory to the joint report because he was 100% certain that Y7 was indeed the mark of Ms McKie.[86] In the absence of an objective standard the conclusion comes down to the "individual responsibility" of the examiner.[87] Mr Geddes expressed the test in terms of a "sufficient volume" for an identification and quite clearly acknowledged that this was subjective and open to variations among examiners:

> "THE CHAIRMAN: But does this not mean that the volume might be sufficient to satisfy one expert but not sufficient to satisfy another?
>
> A. Unfortunately, yes. That is the very nature of – that is the issue where the scientists have issues with us because it is subjective and it is down to the individual. I spoke last week of [the] individual but the bureau has a responsibility to ensure that that individual is trained, has relevant knowledge and that expertise is maintained because it does come down to the subjective opinion of the individual expert."[88]

33.53. This answer places the emphasis on the competence of the individual examiner but Mr Geddes had also emphasised the wider protections afforded by the institutional controls such as effective training, quality assurance and compliance with appropriate procedures including effective verification.[89] That is examined in Part 7.

OIG report on Brandon Mayfield case

33.54. Recognition of the fact that the abandonment of the 16-point standard did not alter the methodology that was being applied by fingerprint examiners leads to the conclusion that the core variables inherent in the methodology are constant factors of relevance to the reliability of fingerprint evidence irrespective of the legal 'standard' being applied.

33.55. In January 2006 the US Justice Department, Office of the Inspector General (OIG), published a report entitled 'Review of the FBI's Handling of the Brandon Mayfield

83 Mr Padden 23 June pages 128-131
84 Mr Foley 24 June pages 25-26
85 Mr Geddes 26 June pages 23-25
86 Mr Geddes 26 June pages 24-25
87 Mr Geddes 26 June page 26
88 Mr Geddes 1 July page 40
89 e.g. Mr Geddes 26 June pages 26-27

case'[90] that cast light on the methodology and the core variables. There are parallels between the findings in that report and the conclusions in this report.

33.56. Brandon Mayfield was an American attorney arrested on suspicion of involvement in the Madrid bombing in May 2004 because of the erroneous identification of him by the FBI as the source of a fingerprint (LFP17) found on a bag of detonators. The identification was made by one FBI examiner and verified by a further two FBI examiners and was endorsed in due course by an independent court appointed examiner. The FBI initially adhered to its conclusion despite knowing that the Spanish National Police reported a negative result only subsequently to accept that there had been a misidentification when the Spanish authorities identified the mark as having been made by another man, an Algerian national by the name of Daoud.

33.57. The FBI examiners worked to a non-numeric standard but, after conducting an investigation, the OIG concluded that the methodological errors committed by the examiners could have led to a misidentification even if a numerical standard had been applied.

33.58. A number of methodological failings were found:

(i) There was a failure to carry out a complete analysis of the mark resulting in important differences being ignored.

(ii) There was an unusual number of apparent similarities between Mr Mayfield's print and LFP17. Mr Mayfield's print and LFP17 were close non-matches, with ten points bearing some degree of similarity. This confused the examiners.

(iii) The FBI interpretation was influenced by reverse reasoning that led the examiners to conclude that 'murky and ambiguous' details in LFP17 could be identified as points of similarity.

(iv) The examiners failed to address the poor quality of the similarities. Such was the lack of clarity in the mark that the examiners could not accurately determine the precise nature of some characteristics (as a bifurcation or a ridge ending). They were consequently relying on what were truly ambiguous features as points of similarity. The ambiguous quality of the characteristics was such that they did not support the conclusion of identity and on closer scrutiny some of the characteristics were found not to match (a bifurcation in one corresponding to a ridge ending in the other).

(v) The examiners gave inadequate explanations for differences, including discounting an entire section of mark and print because of an assumption of a double touch, an assumption that was based on an extraordinary series of coincidences.

(vi) They placed faulty reliance on third level detail.

(vii) The verification procedure failed in part because the verifiers were aware that an identification had been made by preceding examiners.

90 US Department of Justice, Office of the Inspector General (2006) Review of the FBI's Handling of the Brandon Mayfield Case (Unclassified and Redacted) (US Department of Justice) URL: http://www.justice.gov/oig/special/s0601/final.pdf,

(viii) The FBI failed to re-examine the finding when advised of the negative Spanish result because of overconfidence in the skill and superiority of its examiners.

33.59. The OIG report made a number of recommendations to address those failings. Though the report was current at the final stages of preparation for the move to the non-numeric 'standard' in Scotland, it was not considered by either Crown Office[91] or the Scottish Fingerprint Service.[92]

91 CO_4428 pdf pages 2-3 (letter from Mr Pattison dated 2 September 2009) and FI_0195 para 21 Inquiry Witness Statement (Supp.) of Mr Pattison

92 Mrs Tierney 12 November page 51ff

Part 7

Current Fingerprint Practice and New Measures

Part 7

Current Fingerprint Practice and New Measures

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CHAPTER 34

INTRODUCTION TO PART 7

Introduction

34.1. In Part 4 of this Report I give a detailed analysis of the evidence to the Inquiry regarding a small number of fingerprints associated with and leading up to a particular criminal trial in Scotland in 1999, *HMA v McKie*. Since I had the benefit of an active, informed debate during which I heard about the methodologies used by fingerprint practitioners and the competing explanations they provided concerning the marks and prints at issue, I was put in a position in which I could arrive at my own conclusions.

34.2. I have found that SCRO were in error in identifying Y7 as having been made by Ms McKie and in identifying QI2 as having been made by Miss Ross. There was a misidentification of Y7 and QI2 Ross.

34.3. The evidence did not provide a basis for findings that the errors arose because of a specific failure or mishap. Rather, as set out in Part 5, the evidence indicates that recognised risk factors were present and I consider that these provide a reasonable explanation for the errors.

34.4. The question then arises as to how the risk of such errors happening might be minimised. As with any field of human endeavour I do not consider that the risk of error can be excluded totally but my terms of reference require me to make recommendations as to what measures might now be introduced to ensure that any 'shortcomings' are avoided in the future.

34.5. The case in question was more than a decade ago, and accordingly I took evidence as to current practice in order to inform my consideration of what new measures might be introduced. I heard evidence as to practice in Scotland and other parts of the United Kingdom and also, to a limited extent, elsewhere. I also had the benefit of a review of relevant literature prepared for the Inquiry,[1] and access to various reports such as those of the National Academy of Sciences in the United States of America and the OIG reports of 2006[2] and 2011[3] following the Brandon Mayfield case.

34.6. My conclusions are based on the evidence before me. I have found it instructive, however, that as will be seen at various places in the chapters in this Part, my conclusions, in many respects, accord with conclusions in the OIG and National Academy of Sciences reports which demonstrate that the factors that I have

1 EC_0001:The Current Position of Fingerprint Evidence – a Literature Review C. J. Lawless, I. C. Shaw and J. Mennell, School of Applied Sciences, Northumbria University

2 US Department of Justice, Office of the Inspector General (2006) Review of the FBI's Handling of the Brandon Mayfield Case (Unclassified and Redacted) (US Department of Justice) URL: http://www.justice.gov/oig/special/s0601/final.pdf

3 US Department of Justice, Office of the Inspector General (2011) A Review of the FBI's Progress in Responding to the Recommendations in the Office of the Inspector General Report on the Fingerprint Misidentification in the Brandon Mayfield Case URL: http://www.latent-prints.com/images/FBI%20Mayfield%20Progress%20062011.pdf

identified as having contributed to the errors in relation to Y7 and QI2 Ross are not isolated, local considerations but cast light on the fundamental premises of fingerprint comparison as a forensic discipline and the 'limits of performance'[4] of the discipline.

34.7. In considering recommendations I have had to reflect with particular care on the facts that (1) there is no reason to suggest that fingerprint comparison is an inherently unreliable form of identification and (2) fingerprint evidence continues to be rarely challenged and is most often treated as routine. Recommendation of new measures has to approach the subject with a sense of perspective.

Current practice in perspective

Fingerprint evidence in the criminal justice system

34.8. Evidence given by Mrs Tierney gives some perspective to a review of current practice. She provided statistics relating to the workload of the Edinburgh bureau between April 2008 and March 2009. The bureau processed just short of 1500 cases, of which ninety resulted in requests for statements for court purposes. The bulk of the work was, accordingly, providing intelligence to the police to assist with investigations.[5] Of the ninety cases where a request for a report was made, thirteen related to High Court proceedings, fourteen were for sheriff and jury cases and the rest were for summary proceedings.[6] On only three occasions was there a request for oral evidence and this was not to respond to a challenge from a defence expert but was by way of explanation.[7]

34.9. Mr Pattison gave corresponding statistics for the prevalence of fingerprint evidence in High Court cases generally. Between April and September 2009 there were 228 trials indicted to the High Court. Twelve of those trials featured fingerprint evidence. In nine of those cases the fingerprint evidence was agreed between prosecution and defence in a joint minute of agreement, thereby dispensing with the need for an examiner to give evidence in person. In only three cases did an examiner give oral evidence at a trial. In none of those three cases was there a challenge to identification. Rather evidence was led from an examiner for incidental reasons.[8] In one case the prosecutor wanted to draw an inference from the position of the print. In the other cases the defence would not agree the fingerprint evidence: in one case because the defence had an interest in another unidentified mark found at the scene; and in the other because the defence challenged the process by which the prints had been taken.[9]

34.10. There are no comprehensive statistics for trials before a sheriff and jury but in the same period Mr Pattison was aware of only three cases in which oral evidence was led from a fingerprint examiner.[10]

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4 See Judge Edwards, "Solving the Problems That Plague the Forensic Science Community", keynote address at the conference on Forensic Science for the 21st Century: The National Academy of Sciences Report and Beyond, Arizona State University, 3 April 2009, page 3. URL: http://lst.law.asu.edu/FS09/pdfs/H.T.%20Edwards,%20Solving%20the%20Problems%20That%20Plague%20Forensic%20Science.pdf

5 Mrs Tierney 12 November pages 95-97

6 Mrs Tierney 12 November page 175

7 Mrs Tierney 12 November pages 174-175

8 Mr Pattison 13 November pages 182-183

9 FI_0195 para 5 Inquiry Witness Statement (Supp.) of Mr Pattison

10 FI_0195 para 7 Inquiry Witness Statement (Supp.) of Mr Pattison

34.11. The relative infrequency of examiners being required to give evidence in person at trials can be viewed from a different perspective. As at the date of the Inquiry, Mr McGinnies, who qualified in 2004,[11] had not given evidence in court in any case,[12] while Mrs Tierney had never given evidence in a case in which a defence expert was expressing a different view.[13]

34.12. This is reflected in other jurisdictions. In London the position is similar, with most identifications and eliminations not proceeding to court. Mr Pugh said that it should be recognised that fingerprints play an important part in the investigation of crime, particularly the early stages of crime investigation.[14] 28,000 cases of volume crime, such as burglary and vehicle crime, came in to the Metropolitan Police bureau in 2008-2009 to have finger marks searched against the database or compared against a nominated suspect. This generated around 6000 suspect identifications and 3700 legitimate access identifications. The balance was either unusable or unidentified.[15] Of those volume crime cases the Metropolitan Police was asked to prepare evidence in around 770 cases.[16] Not all of the 770 cases were contested.[17] Mr Pugh offered a number of reasons why most of the 6,000 identifications did not result in a requirement to give evidence, including the finding of other compelling evidence (e.g. the police may find the stolen property in the possession of the suspect on arrest), or the individual may plead guilty.

34.13. Mr Chamberlain said that in his experience in England the identification of fingerprints is rarely challenged in courts[18] and that accorded with the experience of Mr Logan in Northern Ireland who had not given evidence in a case involving a disputed mark.[19] Mr Chamberlain suggested that the lack of challenge was due to a general public perception, shared by the judiciary, that fingerprint evidence is irrefutable and safe and a lack of defence expertise. Challenges tended to be collateral and not substantive. Normal lines of defence were legitimate access to the site of the mark, attacking the chain of evidence and, occasionally, discrediting the examiner.[20]

34.14. That is not confined to the United Kingdom. The National Academy of Sciences notes that: “Over the years, the courts have admitted fingerprint evidence, even though this evidence has ‘made its way into the courtroom without empirical validation of the underlying theory and/or its particular application’. The courts sometimes appear to assume that fingerprint evidence is irrefutable.”[21]

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11 FI_0193 para 2 Inquiry Witness Statement of Mr McGinnies
12 Mr McGinnies 4 November page 124
13 Mrs Tierney 12 November page 199
14 Mr Pugh 24 November pages 84-85
15 Mr Pugh, Mrs Redgewell 24 November pages 105-111 and MP_0008
16 Mr Pugh 24 November page 109
17 Mr Pugh, Mrs Redgewell 24 November pages 109-110
18 Mr Chamberlain 18 November page 60
19 Mr Logan 16 November page 35
20 Mr Chamberlain 18 November page 61, Champod C. and Chamberlain P. Fingerprints, in: Fraser J. and Williams R. (eds) Handbook of Forensic Science, Willan Publishing, 2009, page 80
21 Committee on Identifying the Needs of the Forensic Sciences Community, Committee on Science, Technology and Law Policy and Global Affairs, Committee on Applied and Theoretical Statistics Division on Engineering and Physical Sciences, National Research Council. Strengthening Forensic Science in the United States: A Path Forward, Washington, D.C.: National Academies Press, 2009, page 102

Standards in the provision of fingerprint evidence

34.15. The Inquiry heard evidence from Mr Andrew Rennison, the Forensic Science Regulator for England and Wales. The scope of regulation spans the whole investigative and judicial process and encompasses standards for organisations providing forensic science services, the competence of practitioners and the validation of methods.[22] He drew a distinction between regulation of (1) organisations providing forensic science services, (2) practitioners and (3) the techniques being applied.[23]

34.16. Many of the earlier investigations and reviews concerning SCRO dealt with issues such as the overall structure of fingerprint services in Scotland. There has been considerable structural change in relation to the delivery of fingerprint services in Scotland. In 2007, the Glasgow bureau, with the other SFS bureaux, became part of the Scottish Police Services Authority (SPSA) established under the Police, Public Order and Criminal Justice (Scotland) Act 2006. This legislation has made arrangements for the independence of SPSA, structurally, from police forces or any individual police force. The SPSA is subject to financial and performance audits by the Auditor General for Scotland and I have not considered it part of my remit to review its general structural or operational arrangements.[24]

34.17. In chapter 40 I do consider the regulation of organisations and practitioners but, in reviewing the evidence to the Inquiry, my focus has come to be upon the techniques that are applied by fingerprint examiners. The Inquiry has confirmed previous studies that there is variability among fingerprint practitioners in relation to observation of ridge detail in fingerprints, the interpretation of observed detail and the consequent conclusion as to whether or not a match can be made.

Assessing fingerprint evidence

34.18. My findings relative to QI2 Asbury demonstrate that a finding of identity can be made despite a difference among fingerprint examiners in relation to incidental details. But differences between examiners may go deeper than *incidental* detail. Y7 serves as a contrast to QI2 Asbury. There were variations in detail among the examiners in SCRO and the external experts Mr Graham and Mr Swann who were agreed as to the identification and I concluded that, properly understood, those differences were indicative of an unreliable identification of Y7. In coming to that conclusion I was in the fortunate position that the Inquiry had not only detailed evidence from those who supported the identification, but also the benefit of the insight of contradictors who alleged that Y7 had been misidentified, and the same was true of QI2 Ross.

34.19. The existence of a contradictor may be a matter of chance in another case. The challenge for individual fingerprint examiners is to be alert to the potential for error and to guard against it when formulating their opinions; and, for the legal system, the challenge is that the reliability of fingerprint evidence may have to be assessed without the benefit of a contradictor.

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22 EB_0001 para 5
23 Mr Rennison 8 July pages 80-81
24 Audit Scotland (2010) The Scottish Police Services Authority, (Audit Scotland), URL: http://www.audit-scotland.gov.uk/docs/central/2010/nr_101028_spsa.pdf

34.20. All forensic evidence should be approached with an open and questioning mind both by those who practise the discipline and by the legal community. It should not be assumed that any forensic evidence is irrefutable or infallible, if only because of the risk of human error. Nor should it be assumed that any form of forensic evidence is necessarily routine. Fingerprint evidence is no different. There is no evidence before the Inquiry to suggest that fingerprint evidence as a class is inherently reliable. On the other hand there is no basis for a claim to infallibility. It is opinion evidence and where appropriate, it should be subject to robust scrutiny and challenge. Mr Tom Nelson, SPSA's Director of Forensic Services, welcomed forensic evidence being challenged because he recognised that the expert was in court to provide the best evidence so that the court could reach a decision.[25]

34.21. The legal profession, judges and juries need to be alert to the subjective nature of fingerprint evidence and to the other factors of relevance to the assessment of the opinion of a fingerprint examiner in order to consider this evidence on its merits. However, as the National Academy of Sciences has observed: "Judicial review [i.e. scrutiny], by itself, will not cure the infirmities of the forensic science community" in part due to the limitations of the adversarial process.[26] That observation is made all the more telling by the statistics quoted above as regards the small proportion of cases that actually reach court. There is a need for the forensic science community to improve.

Improving fingerprint evidence

34.22. I have already observed that it is necessary to have a sense of perspective. As Judge Edwards said: "we cannot throw out the baby with the bath water as we work to improve the science underlying forensic practice."[27] That comes through in the report of the committee of the National Academy of Sciences that he co-chaired:

> "Historically, friction ridge analysis has served as a valuable tool, both to identify the guilty and to exclude the innocent. Because of the amount of detail available in friction ridges, it seems plausible that a careful comparison of two impressions can accurately discern whether or not they had a common source. Although there is limited information about the accuracy and reliability of friction ridge analyses, claims that these analyses have zero error rates are not scientifically plausible."[28]

34.23. Fingerprint comparison continues to serve as a valuable source of evidence but practice can be improved. The operative words are "a careful comparison". The reliability of fingerprint evidence depends in part on the robustness of the methodology of fingerprint comparison and the structures within which examiners practise, including proper training and accreditation of examiners and effective management of the ACE-V protocol to which they work. At the same time, it has to be recognised that it is not realistic to expect a zero error rate and therefore the reliability of fingerprint evidence depends on a proper appreciation by fingerprint examiners, and the legal community, of the limitations of the discipline and in

25 Mr Nelson 13 November page 7
26 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, page 110
27 Judge Edwards, "Solving the Problems That Plague the Forensic Science Community", 2009 page 9
28 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, page 142

particular the subjective nature of the judgments that underlie a fingerprint opinion and the many variable factors of relevance to it.

The structure of this Part

34.24. The chapters in this Part consider (1) the methodology of fingerprint identification, (2) ACE-V, (3) the documentation of fingerprint work and court reports, (4) the expression of opinion by examiners and implications for the presentation of evidence, (5) the need for special treatment of 'complex' marks, (6) accreditation and training of examiners, performance management and expert witness status and (7) research and the role of statistics.

34.25. Current practice is reviewed and recommendations are made to seek to ensure that fingerprint work is undertaken as carefully and as reliably as possible and also that the basis for conclusions reached by fingerprint examiners is properly disclosed so that those who have to assess the evidence are given the means to do so.

CHAPTER 35

THE METHODOLOGY OF FINGERPRINT IDENTIFICATION

Introduction

35.1. The Forensic Science Regulator recognises a need for the regulation of forensic science techniques just as much as regulation of providers and practitioners.[1] I agree. The output of the most competent practitioner is no more reliable than the limits of the technique that is being applied. This chapter begins by looking at the foundations of the technique or methodology of fingerprint identification.

35.2. Fingerprint examiners identify marks as having been made by a particular person. Professor Champod and Mr Chamberlain state: "Fingerprint identification in the UK and around the world is understood to mean that a mark has been attributed to a particular individual to the exclusion of all others, although it is seldom articulated in this way. 'Others' refers often to any human in the world, living or dead."[2]

35.3. Given that examiners 'individualise' marks, the underlying assumption is that fingerprints are unique to an individual. As mentioned in chapter 2, the assumption of uniqueness is the subject of discussion and on-going research but is a premise about friction ridge *skin*.[3] Fingerprint examiners work with *impressions*.[4] The uniqueness of fingerprint detail and its persistence over time mean no more than that fingerprints are capable of providing a reliable basis for identifying an individual. That is not to be confused with the separate question whether evidence given by fingerprint examiners relating to the comparison of a particular mark and a print from a known individual reliably identifies that individual as the maker of the mark:[5]

> "The question is less a matter of whether each person's fingerprints are permanent and unique - uniqueness is commonly assumed - and more a matter of whether one can determine with adequate reliability that the finger that left an imperfect impression at a crime scene is the same finger that left an impression (with different imperfections) in a file of fingerprints."[6]

Studies of the variability in findings of fingerprint examiners

35.4. Research carried out by the Metropolitan Police[7] sought, among other things, to measure the extent of agreement between fingerprint examiners across a series

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1 Mr Rennison 8 July pages 80-81
2 Champod C. and Chamberlain P. Fingerprints, in: Fraser J. and Williams R. (eds) Handbook of Forensic Science, Willan Publishing, 2009, page 72
3 See chapter 2 paras 10 and 30-33
4 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology. Boca Raton, Florida: CRC Press, 1999, page 93 and Mr Kent 7 July pages 62-64
5 See chapter 2 paras 30-33
6 Committee on Identifying the Needs of the Forensic Sciences Community, Committee on Science, Technology and Law Policy and Global Affairs, Committee on Applied and Theoretical Statistics Division on Engineering and Physical Sciences, National Research Council. Strengthening Forensic Science in the United States: A Path Forward, Washington, D.C.: National Academies Press, 2009, page 43 (and also pages 143-144). Also Professor Champod 25 November pages 40-41.
7 MP_0008 section 5. This research was not peer reviewed as at November 2009 – Mr Pugh, Miss Hall 24 November page 56ff at page 63.

of marks on a scale from good to very poor quality. The research found that there was consensus between the examiners on the easiest and most difficult marks.[8] The proportion identifying marks decreased with difficult marks and the proportion deciding that the marks were insufficient increased.[9] The research also showed that there was disagreement on the most difficult rotational marks.[10] At 75% rotation the experts disagreed 50/50, but there was more consistency for marks with superimposition and reduced pressure.[11]

35.5. Other research suggests that different examiners will analyse the same complex mark differently. Professor Champod explained that when the quality of the mark is reduced variations between examiners as to the number of points found in agreement become quite large, and he referred to the study by Evett and Williams in this regard. The Evett and Williams report showed that different examiners interpret the same marks and prints in very different ways. In one case one examiner saw 14 and another 56 points based on the same material. A similar test carried out with Swiss examiners, based on the material used in Evett and Williams, produced similar results.[12]

35.6. Mr Kent carried out two experiments with a colleague in the Home Office Police Scientific Development Branch[13] around 1995/1996 designed to ascertain the level of digital image quality required by examiners to make an identification on the introduction of digital photography.[14] Examiners were asked to evaluate marks of varying quality but not to compare the marks to prints. They were provided with one mark at a time and asked to indicate how many characteristics they could find that could be used for comparison purposes. The first experiment involved examiners marking high resolution photographs and the second used on-screen images. Data from these experiments was analysed on an examiner by examiner basis. This showed substantial variations in the numbers of characteristics found by examiners. For one scene of crime mark the results were:

(i) one examiner found between 5 and 10 characteristics;

(ii) four found 10 to 15;

(iii) five found 15 to 20;

(iv) three found 20 to 25; and

(v) one found between 25 and 30.[15]

It was suggested that the problem lay with small bureaux or inexperienced staff but analysis of the results did not support either theory.[16]

8 Miss Hall 24 November page 61
9 MP_0008 para 5.4
10 Miss Hall 24 November page 62
11 Miss Hall 24 November page 63
12 Professor Champod 25 November pages 71-72
13 Now the Home Office Scientific Development Branch
14 FI_0052 para 47ff Inquiry Witness Statement of Mr Kent and HO_0032
15 FI_0052 para 57 Inquiry Witness Statement of Mr Kent
16 FI_0052 para 58 Inquiry Witness Statement of Mr Kent

The findings of the Inquiry

35.7. The evidence to the Inquiry also demonstrated variability in the findings of fingerprint examiners. There was a spread among those who agreed the identification of Y7.

- The four SCRO examiners who signed the court reports (Mr MacPherson, Mr Stewart, Mr McKenna and Ms McBride) and Mr Halliday have always taken the view that there were at least 16 points in sequence and agreement.
- As the original first verifier Mr Geddes observed only 10 points in sequence and agreement and did not agree Mr MacPherson's fuller 16 points even when they were shown on a comparator machine.[17]
- Mr Mackenzie observed 10-11 points on 17 February 1997, 12 or 13 on 18 February 1997 and 22 'traditional characteristics' (i.e. level 2 details)[18] using the police elimination prints by the time of the meeting at Tulliallan.
- Mr Dunbar saw fewer than 16 points in his two examinations (perhaps at least ten points though he could not be specific as to the number).
- During the blind test Mr Bruce found eight and Mr Foley found ten.
- Mr Graham, who was instructed on behalf of the defence for *HMA v Asbury*, marked seven points on a 'Wertheim image' that he was shown in June 2001.[19] While his recollection is that he may have seen more points when first instructed in May 1997, he had never seen as many as 16 points on any image.[20]
- In his March 1999 reports to Levy & McRae Mr Swann recorded that he had found 16 points. In July 1999 Mr Swann marked 18 points in the charting sent to Mr Kent[21] and in his evidence to the Inquiry he addressed a total of 32 points in three chartings.[22]

35.8. Those who disputed that conclusion reported a lesser number of potentially matching points: Mr Wertheim at most five points, and the NTC reported three[23] or five[24] depending on the image studied by them.

35.9. The differences in the number of characteristics observed and the interpretation of those that were observed foreshadowed a difference of opinion among examiners as to the result in relation to Y7. Differences in detail do not, however, necessarily lead to differences as to the result. In the case of QI2 Asbury the conclusions of PSNI and SCRO coincided but PSNI found only ten points in sequence and agreement, whereas Mr MacPherson, Ms McBride and Mr Geddes, studying

17 FI_0031 paras 103, 106 Inquiry Witness Statement of Mr Geddes
18 CO_0059 pdf pages 14-15 (the characteristics numbered in red)
19 FI_0089 para 36 Inquiry Witness Statement of Mr Graham
20 Mr Graham 9 July pages 59-60
21 HO_0104
22 Mr Swann 21 October pages 51-52
23 CO_1065 para 4.3
24 CO_2003 para 2.7

another image, reported 17.[25] Where there is clarity in ridge detail in mark and print it ought to be possible to say that one view is more clearly right and the other wrong, but if there is poor clarity of detail (as there was in QI2) there can be understandable differences of opinion at the margins which may not affect the validity of the conclusion on a more limited number of common points. The challenge is to determine whether inconsistencies among examiners are merely incidental (as in QI2 Asbury) or substantive (as in Y7 and QI2 Ross).

35.10. At one level the implications of that challenge could be viewed narrowly as raising only a question about the competence of individual practitioners but on closer examination it does demonstrate uncertainties about the limits of performance of the technique itself that transcend subordinate issues of individual practitioner performance.

Fingerprint evidence as opinion not fact

35.11. The previous studies and the findings of the Inquiry support the conclusion that fingerprint evidence is a matter of opinion not fact but that simple proposition merely gives rise to two consequential issues:

(i) From the practitioner's perspective, what factors are material to the formulation of a reliable opinion?

(ii) From the perspective of a fact-finder, be it a judge or a jury, how is the opinion to be properly assessed?

35.12. In addressing those overlapping questions it is necessary to begin by considering the key variables that are integral to the technique applied in carrying out a fingerprint comparison. These can be focussed in five questions:

(i) Are the materials supplied (mark and print) of sufficient quality for comparison purposes?

(ii) Can the examiner accurately observe sufficient characteristics in mark and print for a reliable comparison?

(iii) Can the examiner reliably interpret those characteristics in such a manner as to determine which match and which differ?

(iv) Can the examiner ascertain a reliable explanation for the characteristics that differ?

(v) Can the examiner find sufficient matching characteristics to justify the inference that the mark is uniquely identifiable as having been made by a specific person?

35.13. The discussion of these questions emphasises that fingerprint identifications can depend on a complex series of subjective judgments. That is integral to the technique of fingerprint identification. The focus of the discussion in this chapter is on how examiners reach their conclusions but a proper understanding of these matters is equally important to the ability of the fact-finder properly to assess the reliability of the opinion. An important link between the two is the extent to which

25 See chapter 27 para 44ff

the examiner is conscious of the separate judgments comprised in his conclusion and his ability to be more transparent in both the report that is provided and ultimately in the evidence presented in court.

Definition of terms

35.14. Judge Edwards, the co-chairman of the committee that produced the report of the National Academy of Sciences, has drawn attention to the failure of forensic scientists generally to use standard terminology.[26] This is an acute issue when addressing the process of reasoning applied by fingerprint examiners in reaching a conclusion on a comparison.

35.15. It may broadly be said that an identification can be made when the 'points' in mark and print 'agree' and an exclusion made when they 'disagree' but what is a 'point' and by what criteria is it determined whether there is 'agreement'?

35.16. INTERPOL's European Expert Group on Fingerprint Identification has produced a Method for Fingerprint Identification[27] with one set of definitions that could be used in discussing that question and, more recently, during 2011 the Scientific Working Group on Friction Ridge Analysis, Study and Technology (SWGFAST)[28] published its 'Standard Terminology of Friction Ridge Examination'.[29]

35.17. The 2011 OIG report uses the SWGFAST terminology and draws a distinction between a 'difference', a 'dissimilarity' and a 'discrepancy'; 'difference' being used as the generic term and 'dissimilarity' being used for the subset of 'differences' due to the natural variation in the appearance that can occur due to distortion; and 'discrepancy' being used for differences in appearance "potentially requiring exclusion".[30]

35.18. Any debate about terminology can obscure the more substantive issue raised here. To take the SWGFAST model as an example, the essence of the distinction between the two subsets, a 'dissimilarity' and a 'discrepancy', is not semantic. The boundary between the two is determined by 'tolerance', a term which SWGFAST defines as: "The amount of variation in appearance of friction ridge features to be allowed during a comparison, should a corresponding print be made available."

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26 Edwards, Judge H.T. Solving the Problems That Plague the Forensic Science Community – The National Academy of Sciences, 3 April 2009, Arizona, US page 2. URL: http://lst.law.asu.edu/FS09/pdfs/H.T.%20Edwards,%20Solving%20the%20Problems%20That%20Plague%20Forensic%20Science.pdf

27 INTERPOL European Expert Group on Fingerprint Identification – IEEGFI II (2004) Method for Fingerprint Identification Part II, URL: http://www.interpol.int/Public/Forensic/fingerprints/WorkingParties/IEEGFI2/default.asp

28 SWGFAST is sponsored by the US Institute of Justice and the FBI. It aims to establish consensus guidelines and standards for the forensic examination of fingerprints, palm prints and foot prints. Members include up to fifty representatives from international, federal, state, and local forensic science laboratories, as well as from academia and private practice.

29 Scientific Working Group on Friction Ridge Analysis, Study and Technology (2001) Standard Terminology of Friction Ridge Examination, (SWGFAST). URL: http://www.swgfast.org/documents/terminology/110323_Standard-Terminology_3.0.pdf

30 US Department of Justice. Office of the Inspector General (2011) A Review of the FBI's Progress in Responding to the Recommendations in the Office of the Inspector General Report on the Fingerprint Misidentification in the Brandon Mayfield Case, URL: http://www.latent-prints.com/images/FBI%20Mayfield%20Progress%20062011.pdf page 11

That begs the substantive question: what amount of variation in appearance is permitted in a proper allowance for 'tolerance'? To that there is no finite answer.

35.19. The INTERPOL text also subsumes the concept of 'tolerance' within the definition of its basic term, which is a 'point of agreement': there is said to be a 'point of agreement' if there is "a similarity that meets a specific value and where that similarity falls within the ruling tolerance."[31]

35.20. Subsuming 'tolerance' within the definition of 'dissimilarity' or 'point of agreement' obscures the fact that there is no objective standard by which to determine the appropriate limit of 'tolerance'. Absent such a standard there is no clear boundary between a 'dissimilarity' and a 'discrepancy' or points in 'agreement' and points in 'disagreement'. The paramount consideration is that 'tolerance' is but one way in which fingerprint examiners seek to respond to the fact that two impressions from the same finger will not necessarily correspond exactly. Depending on the personal threshold for 'tolerance' one examiner might conclude that two impressions are 'similar' because the differences are within tolerance. A second may consider the variation to be beyond the limit for 'tolerance' and hence say that the detail is 'dissimilar'. If that second examiner considers that there is some specific explanation for the 'dissimilarity', such as a double touch, that examiner could conclude that there is no 'discrepancy' and might identify. A third examiner might see no satisfactory explanation for the 'discrepancy' and therefore conclude that mark and print are not identical. The three examiners are engaged in the same task, which is determining whether a conclusion of identification can be reached despite some difference between the impressions and the issue is the same: do they have a satisfactory explanation for the difference?

35.21. Because examiners can approach the same issue from different perspectives the discussion in this chapter will, for consistency, use the one common term 'difference' without resorting to any subsets. The term 'difference' is used in a generic sense to embrace any lack of exact correspondence between mark and print. It includes ridge characteristics that are different in shape or in type (i.e. having the appearance of a ridge ending in one impression and a bifurcation in the other), ridge characteristics that are in different positions relative to the core or not in the same sequence and ridge characteristics present in one but not in the other.

35.22. A fuller discussion of the potential for variation in the opinions of examiners also requires discussion of the meaning of the term 'point' or 'characteristic', which brings in the significance of third level detail. For simplicity the discussion of the five questions in paragraph 12 will take level 2 detail as its base and, therefore, the term 'characteristic' will be used solely to refer to second level detail. Level 3 detail is discussed later in the chapter.

31 INTERPOL (2004) Method for Fingerprint Identification Part II para 8.3.1

Question 1: Are the materials supplied (mark and print) of sufficient quality for comparison purposes?

35.23. Differences in the method of detection and recording of impressions can affect the appearance of the mark and complicate the comparison process.[32]

35.24. A misunderstanding regarding the method of detection can itself lead to differences of opinion regarding an identification. SCRO in their 2006 report on QD2[33] said "it is a fundamental starting point of any comparison to know how the mark was developed and recorded." It is apparent that some fingerprint examiners had to make assumptions about the methods used in detecting and recording some of the marks considered by the Inquiry. In the case of QD2 the assumption made regarding the possible use of ninhydrin may have been erroneous and may have been a contributory factor in Mr Rokkjaer and Mr Rasmussen disputing the SCRO identification. The labelling of QD2 was also not helpful. The image used in Production 98 had a number of different impressions and it is possible that the one that the Danish experts examined was not the one identified by SCRO.[34]

35.25. Details regarding the method of detection and the particular impression that is being compared may be considered to be objective facts that should be made clear to all by appropriate clerical recording. There are, however, subjective elements.

35.26. If the quality of the impression is very clear it is much less likely that there will be differences of opinion among examiners and the fact-finder can have much greater confidence in the identification. XF, the mark on the gift tag, is a good example of this.[35]

35.27. Marks with less clarity can be challenging.

35.28. It might be thought from the discussion of marks Y7 and QI2 Ross that differences of opinion among examiners boil down to competing professional judgments regarding the observability of ridge detail or the interpretation of observed detail. However, there can be a preliminary issue unrelated to a conflict of professional judgment. Image quality can be an important factor. This was seen with QI2 Asbury. The same practitioner can reach opposite conclusions depending on the particular image of the mark that is studied; and different groups of examiners can disagree if studying a single image but agree if a range of images is made available.[36]

35.29. Judgments about the 'sufficiency' of the quality of the materials used in making a comparison can be personal and hence differences of opinion among fingerprint examiners may have their origins in their personal assessment of the 'suitability' of the material being used. There may not be consensus among examiners regarding the 'best' image of the mark or the 'best' print. Given that image quality is a critical variable the integrity of the image that the examiner is relying upon requires to be carefully monitored.

32 See chapter 19
33 SG_0706
34 See chapter 27
35 See chapter 27 para 3ff
36 See chapter 27 para 39ff

35.30. At various times the materials used by Mr MacPherson, Mr Mackenzie and Mr Swann have included a variety of secondary copies of images of Y7 produced by photocopying or by printing reproductions of digital copies. It is to be expected that differences of opinion among experts that turn on examination of such copy material will be readily resolved in a case governed by Scots law by the application of the best evidence rule to exclude evidence relative to copy images of doubtful provenance. The quality of the copy is suspect and that undermines the reliability, and hence admissibility, of evidence based on it.[37]

35.31. However, the best evidence rule would not have resolved all of the disputes addressed by the Inquiry. There can be variations in lighting, exposure and contrast in photographs taken separately and even in different images reproduced from the same negative.[38] Each of these images can have equivalent status in the eyes of the law as a first generation image but no one image is necessarily the most 'suitable' for all examiners. PSNI did not initially identify QI2 Asbury despite access to a number of the original photographic images studied by SCRO. It was only after obtaining the negative and developing photographs that they considered to be 'suitable' that they were able not only to identify the mark but to agree SCRO's identification of it.[39]

35.32. Variability is not confined to the crime scene mark. Prints taken under controlled circumstances can vary. The prints of Ms McKie's left thumb provide two examples of that. The first is that the point that came to be labelled SCRO 4 looks more like a ridge ending or a bifurcation depending on whether one looks at the plain or the rolled impression taken by the police.[40] The second is that the prints taken by the police were considered by some to be inadequate because they did not show the outer edge of the thumb and Mr Wertheim took a number of prints himself in order to capture the ridge detail in that area.[41] Mr Swann was critical of even the plain impressions taken by Mr Wertheim and argued that it was necessary to use a rolled impression[42] and in his presentation to the Inquiry he used the rolled impression sent to him by Levy & McRae.[43] This was one of the points of significance in relation to the debate concerning the Rosetta.[44]

35.33. The dispute concerning the top section of QI2 Ross, particularly in relation to Mr Swann's points 4 and 10, provides a further illustration of variability in opinion being ultimately referable to the quality of a controlled print. The ridge structure in Miss Ross's print is broken and therefore open to interpretation. Witnesses were able, with equal conviction, to interpret an interruption in the ridge detail in the print as either a matter of substantive significance (a genuine break in the structure of the ridge) or an irrelevance (the product of the incomplete state of the impression).[45]

37 See chapter 29
38 See chapter 19
39 See chapter 27
40 See chapter 25 para 45
41 See chapter 12 para 48
42 FI_0149 para 3.2 (page 30) Inquiry Witness Statement of Mr Swann
43 TS_0010
44 See chapter 25
45 See chapter 26

Question 2: Can the examiner accurately observe sufficient characteristics in mark and print for a reliable comparison?

35.34. The Metropolitan Police "tipping point" research[46] found that fingerprint practitioners apply personal thresholds to both the qualitative and the quantitative variables.[47] This can be considered using the generic term 'event' that was discussed by Professor Champod in his evidence to the Inquiry.[48] An 'event' is simply a feature in the mark (or print) and it could be a carry through from the underlying substrate (such as the outline of the edge of a groove in wood) or part of the fingerprint itself (a ridge ending or a bifurcation). A fingerprint examiner must firstly consider whether any particular 'event' is observable.

35.35. There can be variations even in the observation of an event. SCRO points 11-14 in Y7 are good examples. Some fingerprint examiners reported observing ridge characteristics at these locations while others said that there was nothing observable.

35.36. There was a debate whether a fingerprint practitioner, by training and experience, can see details that the lay eye would miss.[49] That does not account for SCRO points 11-14 because some trained eyes reported seeing them, while others did not. The Inquiry has no reason to doubt that it takes a trained eye to spot a relevant pattern but, once observed, a trained fingerprint practitioner should be able to demonstrate the existence of at least some 'event' to the fact-finder, be that a judge or the members of a jury. In the case of SCRO points 11-14 in Y7 I reached the conclusion that the existence of these points had not been demonstrated.

35.37. It is recommended that the test be adopted that features (or 'events') on which examiners rely should be demonstrable to a lay person with normal eye sight as being observable in the mark. The fact-finder can trust the evidence of his own eyes: either he sees some 'event' in the location indicated or he does not. If not, the evidence of the examiner on that point can be discounted.

35.38. Interpretation of observable events raises separate issues.

Question 3: Can the examiner reliably interpret those characteristics in such a manner as to determine which match and which differ?

35.39. Assuming that the presence of some 'event' can be demonstrated, the next question is the proper interpretation of that event. Is it no more than a reflection of the underlying substrate; or is it a part of the mark itself and, if so, is it a ridge ending or a bifurcation? This calls for the exercise of professional judgment and is dependent on a number of variables including the clarity of the impression, the personal threshold that the practitioner is applying and, ultimately, his personal opinion as to the 'proper' interpretation of the detail.

35.40. SCRO 7[50] in Y7 is an example of the preliminary issue whether any observable 'event' is a feature of the underlying substrate or part of the mark. It is towards the

46 MP_0008 section 5
47 See para 4
48 Professor Champod 25 November pages 48ff, 104ff
49 See also the New Zealand Court of Appeal in *R v Buisson* [1990] 2 NZLR 542 at pages 549-550
50 FI_0167A SCRO Phase 1 Comparative Exercise Enlargement of Y7

edge of the impression and views among the experts differed, one of the questions being whether, if there is any observable event at all, it is the bifurcation relied upon by Mr MacPherson and Mr Mackenzie[51] or only some "grey-ish looking thing" indistinguishable from the "other noise" in the vicinity, as Mr Zeelenberg argued.[52] My conclusion was that the event is so indistinct as to be indecipherable.[53]

35.41. SCRO points 4-6 in Y7 are useful illustrations of the next issue. Looking to Figure 10 in chapter 25, it may readily be accepted that each of the lines marked A-D is some 'event' forming part of the impression but the detail is incomplete and affected by smudging. Assumptions can be made about how best to read the gaps in ridge detail and, as a consequence of the rival assumptions made, the SCRO examiners (supported by some independent examiners) were able to advance the argument that these points matched the print of Ms McKie while others (notably Mr Wertheim, Mr Zeelenberg and Mr Grigg) argued that there was a difference between mark and print at one or more of these points sufficient to exclude Ms McKie.[54] This illustrates how highly subjective fingerprint evidence can be. The rival conclusions were simply the products of a series of conflicting assumptions made regarding the interpretation of incomplete ridge detail in the mark.

35.42. Subsumed within that issue is a more subtle and potentially more fundamental one. Assuming that the correct interpretation is that what appears as a ridge ending in the mark is a bifurcation in the print (or vice versa), what is the significance of this type of difference?

35.43. The INTERPOL 'Method for Fingerprint Identification' focuses on 'events' without insisting on an exact discrimination between ridge endings and bifurcations:

> "Due to moisture, pressure or even over (or under) inking a true ending ridge might show as a bifurcation and vice versa. Those differences are within normal tolerances and have no fundamental relevance, i.e. they [do not] conflict possible [donorship] as with all level two detail."[55]

35.44. That assumes that a difference between a ridge ending and a bifurcation is necessarily within 'normal tolerances'. One of the principal lessons in the Brandon Mayfield case[56] is that such a difference may not be within 'normal tolerances' and, indeed, that there can be 'fundamental relevance' in the distinction between these two characteristics. The Office of Inspector General (OIG) report 'A Review of the FBI's Handling of the Brandon Mayfield Case' was published in January 2006 and post-dates the INTERPOL 'Method for Fingerprint Identification'.

35.45. In the Mayfield case the FBI misidentified a crime scene mark from the Madrid bombing (LFP 17) as the mark of an American attorney, Mr Mayfield, when it was actually made by an Algerian national Mr Daoud. Subsequent analysis showed that there were ten 'features' (or 'events') in sequence common to the prints of Mr Mayfield and Mr Daoud. Such was the lack of clarity in the mark that the exact type

51 See chapter 25 para 84
52 Mr Zeelenberg 7 October page 44
53 See chapter 25 para 85
54 See chapter 25 paras 45ff and 88
55 INTERPOL (2004) Method for Fingerprint Identification Part II, para 7.8.3
56 See chapter 33 para 56ff

of the 'feature' (i.e. a bifurcation or ridge ending) was ambiguous. The similarity in the 'features' in Mr Mayfield's print and LFP 17 led the FBI examiners into making a misidentification of Mr Mayfield as the donor of the mark before the competing print of Mr Daoud was shown to them. The differences between the prints of the two men lay, in part, in the discrimination of the *precise* type of these 'features'. What was a ridge ending in one was a bifurcation in the other.[57] Each of the ten features had been interpreted by the FBI in such a way as to match Mr Mayfield's print but after suspicion fell on Mr Daoud it was found that an alternative interpretation of the same features matched Mr Daoud. When identifying the mark as that of Mr Mayfield, the FBI had failed to give adequate consideration to the incomplete nature of the agreement between the corresponding ridge details in mark and print. The OIG report concluded that "the 'quality' of the agreement was inadequate to support the conclusion of identification."[58]

35.46. The same is evident in relation to both Y7 and QI2. Some of the observed 'events' were ambiguous as can be seen from the contrasting characterisations of some of the ridge characteristics by Mr MacPherson and Mr Mackenzie and this was a consequence of the lack of quality of each mark.

35.47. In relation to Y7, SCRO points 4-6 again serve as an example, with Mr MacPherson interpreting SCRO 4 as a bifurcation and Mr Mackenzie seeing it as a ridge ending, each interpretation being possible because the detail in both mark and print is ambiguous.

35.48. The contrast was even more pronounced in relation to QI2 Ross.[59] There are two clear examples.

- Mr Mackenzie interpreted SCRO points 1, 10 and 16 as two continuous ridges bifurcating (at SCRO 1), reconnecting again and ending at a ridge ending (SCRO 10) to form the shape of an eyelet. Mr MacPherson accepted that the ridge bifurcated at the top (at SCRO 1) and that the left leg continued to the ridge ending (SCRO 10) but he argued that the ridge to the right ended in a short spur (SCRO 16) with a gap on the right side between the end of that spur and SCRO 10.

- The second is SCRO 11 and 12 where their alternative interpretations were a bell shape or a lake.

35.49. The findings of the OIG in the Mayfield case and my findings in this Inquiry support the conclusion that it does not necessarily suffice for two or more examiners to agree that there is *some* 'event' or a series of 'events' in common in mark and print. Determination of the precise type of characteristic may have a bearing on the question whether there is an identity. A difference in the type of the characteristic *might* support an exclusion and certainly merits careful attention when considering whether an identification has been established. Each examiner must approach incomplete detail in an impression (mark or print) with conspicuous care because,

57 US Department of Justice, Office of the Inspector General (2006) Review of the FBI's Handling of the Brandon Mayfield Case (Unclassified and Redacted) (US Department of Justice) URL: http://www.justice.gov/oig/special/s0601/final.pdf Table 2 (pdf page 182) and Appendix 1 (pdf page 318)

58 OIG (2006) pdf pages 181-183 at 183

59 FI_0166A SCRO Phase 1 Comparative Exercise Enlargement of QI2

depending on how the ambiguity is resolved, the same ridge detail could be understood to be equally supportive of the opposite conclusions of identity or exclusion. Moreover, where two examiners are proceeding on the basis of conflicting interpretations of ambiguous 'events', they need to give consideration to the question identified in the Brandon Mayfield case, which is whether the 'quality' of the assumed agreement in ridge detail is adequate to support the conclusion of identification.

35.50. There is no hard and fast rule. Impressions from the same finger can vary and, in particular, a ridge characteristic in the skin can reproduce inconsistently as a ridge ending or bifurcation in separate impressions. SCRO 4 in the print of Ms McKie's left thumb is a case in point. Without examining her finger no one is to know which is the 'true' characterisation. For that reason, it may be open to fingerprint examiners in appropriate circumstances to make a finding of identification even when there is a difference in the characterisation of the corresponding 'events' in mark and print. Whether or not that is 'appropriate' in any particular case is another facet of the broader issue of the tolerances being applied in the comparison. In the case of Y7 and QI2 Ross my finding is that the ridge detail in the marks did not have sufficient quality to justify a finding of identification. The fact that the SCRO examiners held conflicting views regarding the interpretation of ambiguous 'events' in Y7 and QI2 was not only indicative of that lack of quality but also demonstrated that they had applied an inappropriate degree of tolerance in the comparison of these marks and had, as a result, fallen into error. [60] For the future, where examiners differ in their interpretation of ridge detail in a complex mark I would expect this to be carefully considered in the technical review that I recommend for complex marks.[61]

35.51. The degree of tolerance applied is an integral part of the next question.

Question 4: Can the examiner ascertain a reliable explanation for the characteristics that differ?

35.52. Uniqueness of friction ridge detail in *skin* depends on the precise configuration of the ridge patterns. It might be thought that it ought to follow that even a single difference between two *impressions* ought to require a finding of exclusion. A single difference between two impressions may be indicative of an exclusion but an identification can be made where there are differences. It depends on the significance of the difference. This is yet another example of the fundamental proposition advanced by Ashbaugh regarding the distinction between ridge detail in the skin, as opposed to detail reproduced in impressions: "Statements about the two media are not necessarily interchangeable."[62]

35.53. Given the propensity for the precise appearance of ridges to alter depending on the manner of deposition, it is not realistic to expect that the detail in two impressions made by the same finger will coincide exactly. In fingerprint comparison allowance has to be made for inevitable variations in detail and this leads to a distinction between what Professor Champod called 'within source' variations (i.e. the type

60 See chapter 28 para 46 and chapter 26 para 43
61 See chapter 39
62 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 93

of difference that can occur when any individual deposits his print) and 'between source' variations (i.e. any difference indicative of the fact that the prints come from two different individuals). The presence of some differences between mark and print would not preclude a finding of identification if the difference is properly to be regarded as a within source variation. On the other hand, if the difference is a between source variation there is an exclusion.

35.54. The first task of the fingerprint examiner is to ascertain whether any difference is capable of reliable explanation as a within source variation. This involves two issues. The first issue is whether the difference is within tolerance. Mr McGinnies described tolerance aptly as "a clarity bridge".[63] Tolerance enables an examiner to bridge across differences. The second issue is whether differences that exceed the limits of tolerance are capable of satisfactory explanation consistent with identity. The residual, or third, issue is whether a conclusion of identification can be reached despite the presence of an unexplained difference.

35.55. These three issues shade into each other because examiners can approach the same point of difference from a variety of perspectives and the same issue of principle arises under whichever heading the discussion proceeds: in what circumstances can a finding of identity be made when there is a difference (or differences) between mark and print?

Tolerances

35.56. The degree of tolerance that it is appropriate to apply is a subjective judgment: "There is no manual of tolerance levels like you would have for a machine."[64] In the absence of any objective measure, examiners work to personal tolerances.

35.57. Professor Champod explained that varying levels of tolerance can be justified depending on the manner in which the mark has been made.[65] In some cases tolerances will be lower, e.g. where there are clear characteristics. In other cases the tolerances may be wider, the example given being a mark on sticky tape: such a mark may be distorted by the skin stretching as it lifts from the tape and this may affect the shape and angle of the core. An examiner will allow for such distortion to have occurred and will consequently apply quite a large tolerance when looking for correspondence.[66]

35.58. The issue of the appropriate level of tolerance is controversial when it comes to marks which are of poor quality.

35.59. Ashbaugh discusses "tolerance for discrepancy" and states that "The idea of allowing more tolerance with poor prints appears to be the reverse of what it should be."[67] It is counterintuitive because, as Professor Champod stressed, the larger the degree of tolerance applied the greater the chance of an adventitious match between mark and print. It follows that applying larger tolerances to marks of poorer quality increases the chances of a finding of identity in relation to marks that

63 Mr McGinnies 4 November page 66
64 Mr McGinnies 4 November page 80
65 Professor Champod 25 November page 113
66 Professor Champod 25 November pages 45-53
67 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 94

are less reliable because of their reduced quality.[68] Mr Zeelenberg drew attention to the cautionary advice in INTERPOL's 'Method for Fingerprint Identification' that "the paradox [is] that one may be inclined to accept more differences in bad prints under the umbrella of distortion than one would accept in better quality prints."[69] The INTERPOL European Expert Group has argued that there should be a rule that tolerances should not vary dependent on the quality of the impression.[70]

35.60. The point is made in chapter 28 that a number of factors ought to have alerted SCRO to the inappropriate tolerances being applied in the identification of Y7 and QI2 Ross. One was the fact that Mr Geddes could not agree the full complement of 16 points in Y7 despite Mr MacPherson's demonstration, to which can be added the similar inability of a number of other examiners, including the senior examiner and the quality assurance officer, to find 16 points. The second is that, on closer analysis, though Mr MacPherson and Mr Mackenzie agreed in the result there were variations between them on the interpretation of 'matching' points in Y7 and QI2, as already discussed in the context of question 3 above. Notwithstanding the move to the non-numeric approach, which on the face of it reduces the relevance of the number of points considered to be in agreement, conflicting estimations of the number of 'matching' characteristics, as much as differences of opinion as to the interpretation of the same ridge detail, can raise issues concerning the degrees of tolerance being applied.

35.61. The current approach to training can be seen in the evidence of Mr McGinnies.[71] Starting from the premise that tolerances are built into the comparison process "not to explain things away but to realise why things may look different",[72] trainees learn how different factors such as deposition pressure and movement can affect (or distort) a mark. They learn this by experience and by studying development techniques and demonstration marks identified by more experienced examiners, including unusual and difficult marks that have been discussed at the national trainers' forum and, therefore, have broad acceptance. The inclusion of examples which have acceptance at a national level does at least guard against an insular approach and the risk that one bureau may be operating to tolerances which are inconsistent with others. It remains the case that levels of tolerance are informed by the conventional wisdom of fingerprint practitioners, rather than scientifically validated experiments.

35.62. Professor Champod suggested a number of ways to guard against the risks associated with tolerance. The first is for the examiner to apply a distinct analysis stage before the comparison is made in order to be clear in advance if large tolerances are being applied to certain characteristics. Those tolerances must then be properly considered at the evaluation stage by the individual examiner.[73] Secondly, Professor Champod said that he took the view that if a feature was reliable it should be reliable to a set of examiners looking at the same mark.[74] Consequently, he advocated that at the verification stage complex marks should

68 Professor Champod 25 November pages 109-111
69 Full passage quoted in chapter 28 para 48
70 See para 92 below; INTERPOL (2000) Method for Fingerprint Identification
71 Mr McGinnies 4 November from page 65
72 Mr McGinnies 4 November page 67
73 Professor Champod 25 November page 110
74 Professor Champod 25 November page 51

be subject to an additional check. Examiners should not only be concerned with the question whether they agree in the conclusion, they should also conduct a technical review of the features used in the individual comparisons and if there are divergences of view among the examiners as to the characteristics relied upon that should trigger a discussion about the tolerances applied and hence the reliability of the conclusion.[75] The 'multiple procedure' applied in the Netherlands incorporates such a technical review at the verification stage.[76]

35.63. The need for separate procedures to be applied to the comparison of 'complex' marks is discussed in chapter 39.

Explanations for differences that are outside the limits of tolerance

35.64. A finding of identity can be made if any differences are capable of satisfactory explanation. The question is how to determine if any particular explanation is 'satisfactory'.

35.65. A feature of evidence to the Inquiry is that most explanations about differences were couched in generalities and supported by 'common sense' and 'experience' alone. Mr Zeelenberg referred to a tendency to "explain differences away" as distortion and he said this was a distinct warning sign.[77] The same can be said of explanations that simply cite 'movement' without specifying the particular pattern of movement and demonstrating that the assumed pattern of movement can account for both the different distribution of characteristics in mark and print and the physical appearance of mark and print.

35.66. The evidence of Mr McGinnies pointed to the relevance of experience and indicated that trainees may be being taught what might be regarded as conventional wisdom.

1. On the first point, his evidence was that as examiners become more experienced and work on more complex marks, they may become more ready to identify that there has been movement in a mark and regard that as an explanation for a difference that they might not previously have been able to rationalise in that way.[78]

2. As to the second, he was asked whether trainees had access to any research papers relating to experiments showing how movement can affect a mark. He explained that SPSA trainees would be presented with marks which had previously been examined and in which other examiners had been satisfied that there had been, for example, double touches. Those examples would come from the day-to-day work of other examiners.[79] Trainees also carry out some experiments and create material themselves.[80] It is the use of examples from day-to-day practice, as opposed to material produced by way of controlled experiment, that gives rise to the risk that trainees are taught no more than conventional wisdom.

75 Professor Champod 25 November pages 110-112
76 See chapter 39 para 11ff
77 Mr Zeelenberg 7 October pages 16-19
78 Mr McGinnies 4 November page 69
79 Mr McGinnies 4 November pages 71-72
80 Mr McGinnies 4 November page 74

35.67. The limitations of experience and conventional wisdom are discussed by the National Academy of Sciences:

> "Currently, distortion and quality issues are typically based on 'common sense' explanations or on information that is passed down through oral tradition from examiner to examiner. A criticism of the latent print community is that the examiners can too easily explain a 'difference' as an 'acceptable distortion' in order to make an identification."

The National Academy of Sciences has recommended formal research in this context.[81]

35.68. Professor Champod agreed that there is a requirement for empirical evidence. When an expert invokes physical movement of a finger to explain a perceived difference he would prefer to see evidence that what is suggested is a possibility. If movement is invoked and there is evidence that such movement can be reproduced through controlled experiments it becomes a possible explanation.[82]

35.69. Mr Zeelenberg drew the attention of the Inquiry to a research paper by Alice V. Maceo entitled 'Qualitative Assessment of Skin Deformation: A Pilot Study'[83] reporting on the impact of various sources of distortion (including differential pressure and torque – i.e. turning movement) on prints. The conclusion is that "'Distortion' is not a wild card to be played to dismiss unexplained regions of concern in a latent print" (page 438). Different types of distortion can affect prints in different ways and even different types of print (a whorl or a loop) can be affected differently under the same source of distortion, with the result that "some distortions may be subject to interpretation or may be unintelligible" (page 436).

35.70. One of the specific conclusions in the Maceo article is helpful to the argument that turning movement may explain Y7 and that is the finding that "Torque ... created significant deformation, affecting the position of minutiae on the periphery of the finger relative to the core" (page 435). That is balanced by the observation that "Latent prints created under torque contain visible clues that allow an analyst to determine the type of stress experienced by the skin" (page 432).

35.71. The first of those findings is relevant to Mr Swann's argument about the points at the tip of Ms McKie's left thumb shown in his chart M.[84] Mr Swann accepts that those points are not in sequence with the Rosetta (chart N) or points in the lower part of the mark (chart O) but torque can produce differential movement of characteristics, particularly on the periphery.

35.72. The second point, regarding 'visible clues' of movement, is relevant to the competing arguments concerning the upper part of the mark Y7 summarised in chapter 25.[85] Mr Swann's explanation of the eight points at the tip of the mark shown in his chart M assumes that a merging of ridges can have occurred without any criss-crossing and the evidence of Mr Zeelenberg, which highlights the

81 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, page 145
82 Professor Champod 25 November page 145
83 Maceo A. V. Qualitative Assessment of Skin Deformation: A Pilot Study. Journal of Forensic Identification, 2009; 59 (4); 390
84 TS_0004
85 Paras 227 and 246-247

relatively small size of the mark, invites the conclusion that such an outcome is unlikely and I have accepted that argument.[86]

35.73. Again there are parallels with the Mayfield case. When the mark was first identified to Mr Mayfield the FBI had explained differences in appearance between the mark and his print on the basis that the former was the product of a double touch. They did so despite the absence of any physical evidence of a double touch, such as the presence of crossovers, misalignment of ridges or protruding ridge ends. The OIG observed that the proposition that there had been a double touch leaving no physical evidence required the FBI to assume "an extraordinary set of coincidences" and that was judged to be unsatisfactory. The OIG report discussed the need for cogent explanations for differences and recommended that the FBI's Standard Operating Procedures "should be revised to explicitly require that the examiner must achieve a degree of certainty with respect to each 'explanation for differences'."[87]

35.74. Mr Dunbar said in evidence:

> "Fingerprint experts do talk in terms of generalities and we at SCRO try to train our students that you can only talk in generalities because the next one that comes up to contradict your theory has just proven you wrong."[88]

Thinking in terms of generalities is to be avoided because it avoids the necessary challenge of considering whether a cogent explanation can be given for the specific differences that are observed between the mark and the print. Mr Mackenzie, Mr Berry and Mr Swann are to be commended for having taken on that challenge. The very fact that they produced chartings enabled their theories to be put to the test and has enabled me to reach an informed conclusion. Fingerprint examiners should not resort to generalities for fear of contradiction. They must be willing to test the robustness of their own assumptions and should expect that this will be a point on which they may be questioned when giving evidence in court.

Unexplained differences

35.75. In chapter 28 it is seen that SCRO examiners, working to the 16-point standard, engaged in circular reasoning in relation to otherwise unexplained differences. Sixteen points in agreement were understood to be indicative of unique identity and, therefore, because sixteen matching points were found the examiners assumed that any difference must be explicable, even though no specific reason could be advanced for the differences.

35.76. Echoes of that reasoning were heard in the evidence of some witnesses describing current practice under the non-numeric system. Mr McGinnies said it is possible to make an identification when a mark has many points in sequence and agreement even though the examiner does not have an explanation for a difference or is unsure about the explanation for a difference.[89] Evidence was given to the same effect by Mr Geddes who spoke of carrying out a balancing exercise but if there

86 See chapter 25 para 276
87 OIG (2006) pdf pages 164-177 and 210-217
88 Mr Dunbar 6 October page 67
89 Mr McGinnies 4 November pages 64-65

was 'sufficient' volume of points in agreement he could decide that there was an identification even without an explanation for an observed difference.[90]

35.77. In theory Mr Chamberlain might identify a mark even though there was an unexplained difference but he could not recall having done so. Any unexplained difference would be documented in the report so that it was clear to the defence and to the court.[91] The nature of the 'discrepancy'[92] would be important. Some 'discrepancies' might not prevent an identification being made. Others would; for example, a bifurcation appearing in the mark that did not appear in the print.[93]

35.78. Other practitioners took a different view. The Metropolitan Police said there must be "no unexplained features in disagreement".[94] Mrs Tierney's position was that if an examiner discovered differences that could not be easily and obviously accounted for, the volume in agreement is immaterial. She also made the broader point, consistent with Mr Grigg's approach to Y7,[95] that the presence of an unexplained difference ought to cause the examiner to start again and consider whether the characteristics initially perceived to be in agreement are in agreement.[96]

35.79. Two separate matters require discussion at this point.

35.80. The first is the proposition that friction ridge detail is unique not just in the fingerprint as a whole but also in a small part of the fingerprint. It is the first of those propositions that underpins the ability of fingerprint examiners to identify partial impressions. It was one of the propositions that Mr Dunbar emphasised in his presentation at Tulliallan,[97] sourced from the book by Wentworth and Wilder on Personal Identification, written in 1932: "there is never the slightest doubt of the impossibility of the duplication of a finger print, or even the small part of one."[98]

35.81. Care has to be taken when considering the possible extrapolation of that proposition to infer that, if friction ridge detail is 'sufficiently' unique in a small part of a mark, a difference elsewhere is immaterial. The context in which it occurs in Wentworth and Wilder is discussion of the broader proposition that under sufficient magnification no two natural objects are duplicates: "No two heads of clover, no two ears of corn, can be exactly alike."[99] Ashbaugh incorporates a variant of the Wentworth and Wilder proposition in his third premise of friction ridge identification:[100] friction ridge patterns and the details in small areas of friction ridges are unique and never repeated.[101] However, consistent with his general thesis that statements that may be true in relation to the skin do not necessarily apply directly to impressions, he observes:

90 Mr Geddes 1 July pages 19-22
91 Mr Chamberlain 18 November pages 28-29, 86
92 The term used by Mr Chamberlain: see page 91
93 Mr Chamberlain 18 November pages 91-93
94 MP_0008 page 22
95 See chapter 25
96 Mrs Tierney 12 November pages 68-70
97 CO_0050 pdf page 2
98 Wilder, H. H. and Wentworth, B. (1932) Personal Identification – Methods for the Identification of Individuals Living or Dead (2nd edition) Chicago: The Fingerprint Publishing Association, page 325
99 Wilder, H. H. and Wentworth, B. (1932) Personal Identification – Methods for the Identification of Individuals Living or Dead, page 321
100 In this Report this proposition is described as the second premise: see chapter 2 para 9.
101 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, pages 91-92

> "when discussing friction ridge skin, it can be said that friction skin is unique in a very small area. The statement, however, only applies to a friction skin print if clarity is present. When clarity is absent it may be an incorrect statement."[102]

35.82. Ashbaugh proceeds to discuss the presence of any indication of distortion as a red flag necessitating careful analysis of the mark[103] and stresses the significance of clarity:

> "When there is less clarity, there is room for some tolerance of discrepancy. However, discrepancies must be consistent with the factors found in the substrate, matrix, development medium, deposition pressure, pressure distortion, anatomical factors. Also, due to these discrepancies each area in agreement will have less evaluative weight. Therefore, a greater volume of unique and accidental details in agreement will be required to satisfy an opinion of individualisation."[104]

35.83. That passage emphasises the need for an explanation for any difference consistent with a recognised source of distortion and *in addition* requires the mark as a whole to be assessed. It coincides with the reasoning of Mrs Tierney, who said that the presence of a difference that she could not explain would cause her to reconsider whether the characteristics that she otherwise had thought were in agreement truly were.[105]

35.84. This leads to consideration of the second matter which relates to the so-called 'one-discrepancy rule' and the 'non-discrepancy rule'. While both rules have a bearing on the relevance of a 'difference' there is a significant distinction between them that can be seen by recalling that fingerprint examiners can reach one of three possible conclusions at the end of a comparison: (1) identification, (2) exclusion or (3) inconclusive.

35.85. The 'non-discrepancy rule' can relate to *identification* and is to be seen in the formulation that a finding of identification can be reached when the examiner observes sufficient coincident characteristics in sequence and the absence of any 'dissimilar' characteristics.[106] The 'one discrepancy rule' can be applied to an *exclusion*: "The presence of one discrepancy is sufficient to exclude."[107] The two rules are sometimes conflated but must be kept separate because they can lead to distinct conclusions and, of course, the examiner is not facing an either or decision – either identification or exclusion – because of the possibility of a finding of inconclusive. A 'difference' that precludes an identification does not necessarily warrant a finding of exclusion because it may be inconclusive either way.

35.86. There is a preliminary question common to both 'rules' and that relates to the meaning of 'discrepancy'. This is best seen in the SWGFAST 'Standards

102 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 93
103 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 127
104 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 131
105 Mrs Tierney 12 November pages 69-70
106 Mr Zeelenberg 7 October pages 18-19
107 Scientific Working Group on Friction Ridge Analysis, Study and Terminology (2003) Standards for Conclusions, (SWGFAST), URL: http://www.swgfast.org/documents/conclusions/030911_Standards_Conclusions_1.0.pdf

for Conclusions' which qualifies the 'one discrepancy rule' by this statement: "Distortion is not a discrepancy and is not a basis for exclusion."[108] The inability to set any parameters on the extent to which 'distortion' can produce 'differences' means that the practical application of both rules is uncertain. Professor Champod's comment was that "a one-unexplained-discrepancy rule is not a standard. In fact this rule is ill-defined by a circular argument[109]... The whole concept of *sufficiency to exclude* is left to the skilled judgment of the examiner."[110]

35.87. In this report I am primarily concerned with two marks that were identified and the fourth question that is presently being discussed (Can the examiner ascertain a reliable explanation for the characteristics that differ?) relates to the circumstances in which a conclusion of identification can be justified when some 'difference' is present. Support can be found in the literature for the circular argument that if there are sufficient characteristics in agreement then any differences must be explicable. Mr Swann[111] cited Wendell W. Clements on The Study of Latent Fingerprints. Clements, in effect, inverts the reasoning of Mrs Tierney, that the presence of a difference that she could not explain would cause her to reconsider the characteristics she had thought to be in agreement. Clements' position is that if sufficient characteristics in agreement are present it is the dissimilarities that require to be reconsidered. The discussion in that text is apropos the question whether a fingerprint examiner can be convinced of an identification if there are 12 matching characteristics and three 'dissimilarities', to which the answer is: "Yes, because the 3 dissimilarities would have to be explainable." The explanation given is in these terms: "... it is not possible to have a print with 12 points of similarity and 3 unexplainable dissimilarities. It has been determined by the Los Angeles Police Department, and many police agencies, that 10 matching ridge characteristics are ample to prove a positive identification…"[112]

35.88. The contention that as few as ten 'matching' characteristics can provide proof of identity, even with some 'dissimilarities' being present, provides a direct link to the Brandon Mayfield case, which post-dates the Clements text. An error was made by the FBI for the overlapping reasons that (a) they failed to give due weight to the lack of quality in ten characteristics that they believed were matching and (b) they failed to give a satisfactory explanation for certain differences. Applying the reasoning of Mrs Tierney, the two failures were inter-related.

35.89. The official response to the Mayfield case has led to a reformulation of both the 'one discrepancy rule' as applying to exclusions and the 'non-discrepancy rule' as applying to identifications. The rationale for the reforms can be considered in light of a practical example. Take the case of a fingerprint found on a knife used in a murder that it is suspected belongs to the accused. A fingerprint examiner observes a difference between the print on the knife (i.e. the mark) and the accused's print. If the examiner attributes that difference to 'distortion' the examiner might conclude that there is an identification, which would be a highly incriminating

108 SWGFAST (2003) Standards for Conclusions, para 2.2.2.
109 Professor Champod here refers to Thornton J.I. The One-Dissimilarity Doctrine in Fingerprint Identification. International Criminal Police Review, 1977; vol 32, pages 89-95
110 ED_0003 para 30
111 Mr Swann 22 October pages 45-47
112 Wendell W. Clements on The Study of Latent Fingerprints, Charles C. Thomas Publisher, 1987 page 108ff at page 113 and see also 124

finding. Alternatively, if the examiner were to conclude that it is *not* due to distortion, and therefore is a 'discrepancy', he could make a finding of exclusion which could be exculpatory. That suggests that the examiner must be equally careful before arriving at either positive conclusion. The examiner should not make an identification without good cause to regard the 'difference' as the product of 'distortion'. Equally, the examiner should not, without good cause, conclude that the 'difference' cannot be attributable to 'distortion' and hence make a finding of exclusion. If there is reason for doubt, the appropriate finding ought to be neutral, i.e. inconclusive.

35.90. The 2011 OIG report discloses that, in relation to findings of *exclusion*, the FBI's standard operating procedures have moved away from the proposition that one discrepancy is sufficient for an exclusion and replaced it with the criterion that exclusion occurs where "there are sufficient friction ridge details in disagreement to conclude that two friction ridge prints did not originate from the same source." It should not be inferred that the FBI would make a finding of *identification* despite some unexplained difference. On the contrary, the FBI has moved away from the one discrepancy rule to avoid erroneous *exclusions*.[113]

35.91. Turning to identification, the OIG believed that "accepting plausible or reasonable explanations supported by mixed evidence was inconsistent with the certainty claimed for identifications" and the FBI's standard operating procedures were also modified in relation to that finding, the revised statement being: "An examiner must be confident that any apparent difference between two prints is due to distortion, and not an actual difference in friction ridge detail. This level of confidence must be consistent with the degree of confidence an examiner must have in order to render an identification decision."[114] Even where an examiner sees many similarities between mark and print, if the examiner is unable to determine with adequate confidence whether one or more differences are "distortions (consistent with identification) or discrepancies (consistent with exclusion)" the examiner will not make an identification.[115] There is a separate question whether the FBI would classify such an indeterminate comparison as either 'not of value for identification'[116] or 'inconclusive'[117] but for present purposes the critical fact is that they would not make a finding of identification in such circumstances.

35.92. Writing in 2000, INTERPOL'S European Expert Group on Fingerprint Identification observed:

> "With identifications proven to be mistaken, it became clear that the involved experts have ignored the differences. Evaluation of those comparisons often contain a long list of excuses why the print does not look like how it should, disguised as demonstration of the skill and experience of the expert… The rule is therefore that: 'Tolerances should not vary dependent on the quality of the impression'."[118]

113 OIG (2011) pdf pages 11-12
114 OIG (2011) pdf pages 30-32 and see also 37-40
115 OIG (2011) pdf pages 11-12 and 30-32
116 Perhaps akin to the Scottish categorisation as 'fragmentary and insufficient'.
117 OIG (2011) pdf pages 37-40
118 INTERPOL (2000) Method for Fingerprint identification; Definitions, para 12

35.93. That is consistent with not only the OIG's findings in relation to the Mayfield case but also my findings in the present Inquiry.

Comment on the approach to differences

35.94. Prior to the Mayfield case it could be argued that the question whether an identification could be made despite an unexplained difference was more apparent than real because explanations for differences could be tenuous generalisations based on no more than 'experience'.

35.95. The 'Rosetta' in Y7 may be taken as an example.[119] At a level of generality some examiners argued that it was 'explained' on the basis that the mark was the product of either (a) more than a single touch or (b) some other movement. At that level it could be argued that Y7 was not a case where a mark was identified despite some *unexplained* difference.

35.96. In light of my findings and the Mayfield case it can now be concluded:

1. An identification should not be made without an explanation for apparent differences.

2. It is not sufficient that there is thought to be *some* explanation for any differences. Rather the question is whether the suggested explanation is *cogent*.

3. The cogency of the explanation depends on a number of specific questions. What source of distortion is suggested? What objective or physical evidence (such as smearing or criss-crossing of ridges) might one expect to find if that source of distortion has occurred? Is there objective information in the impressions consistent with the assumed source of distortion?

4. Where the explanation lies in the allowance for 'tolerance', cogency requires that careful consideration has to be given to the clarity of the mark and the question whether the quality of the similarities is adequate to support a conclusion of identification.

35.97. To take Y7 as an example, if the assumed source of distortion is that the mark is the product of multiple touches, how many touches are required to explain the whole constellation of points in the mark? Is it likely that the assumed sequence of movements will have produced the distribution of characteristics observed in the mark as highlighted in Figure 13 in chapter 25; or does this hypothesis require the examiners "to believe a remarkable set of coincidences"?[120] I rejected the explanation of the distribution of characteristics in Y7, including the Rosetta, as a product of multiple touches or some other movement because it lacked cogency.

35.98. Advancing a test of 'cogency' demands additional rigour at the evaluation stage of a comparison, and during the technical review recommended for complex marks[121] but the fact remains that in the absence of any objective standards 'cogency' is itself a subjective criterion. There is a need for further research to inform decision making.

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119 See chapter 25 figure 12
120 OIG (2006) pdf pages 175-177 at pdf page 176
121 See chapter 39

Question 5: Can the examiner find sufficient matching characteristics to justify the inference that the mark is uniquely identifiable as having been made by a specific person?

35.99. Under the 16-point approach the general position was that examiners had to find sixteen characteristics in sequence and agreement, with no unexplained differences, in order to make an identification.[122] Since the introduction of the non-numeric approach or 'standard' in England and Wales in 2001 and Scotland in 2006 there has been no set threshold as to the number of characteristics required to declare an identification. There is no objective test of 'sufficiency' for a conclusion that mark and print match and the judgment is subjective. As Mr Zeelenberg put it, sufficiency is left to the discretion of the examiner.[123] No individual examiner who gave evidence to the Inquiry gave a definitive reply to the question what was his or her personal minimum threshold; it would depend on the examiner's assessment of the particular pattern in the mark.[124]

35.100. Examiners are influenced by the perceived 'rarity' of particular combinations of level 2 detail. As discussed in chapter 41 some work is being undertaken to establish the statistical incidence of combinations of ridge detail but the current practice of fingerprint examiners is little informed by statistics. Mr Geddes summed it up: "I can only go by my own experience. I can only go by the empirical experience of the fingerprint community as a whole."[125] This is a further example of opinion depending on personal experience informed by conventional wisdom and not scientific experiment.

The use and reliability of third level detail

35.101. In discussing the five questions the focus has been primarily on traditional level 2 features, ridge endings and bifurcations. With the change to the non-numeric system consideration has now also to be given to third level detail. Third level detail can be described briefly as "extremely tiny variations in the ridges themselves, such as the shape of ridge edges, the width of the ridges, and the shape and relative location of pores along the ridges."[126] The fact that third level detail can be 'extremely tiny' places considerable emphasis on the clarity of the impression.

35.102. Some of the evidence to the Inquiry made use of third level detail. For example, it was the inclusion of third level detail that enabled Mr Mackenzie to augment his tally of matching points in Y7 to a total of 45 in his Tulliallan presentation.[127] Although the use of first and second level detail in the identification of fingerprints is long-standing, the conscious use of third level detail as a factor in decision making is a more recent development. Mr MacPherson observed that the relevance of third level detail (particularly pores) can be traced back to the work of Locard in 1912[128] but Ashbaugh explains that while numerical standards prevailed third level detail

122 See chapter 32
123 Mr Zeelenberg 8 October page 18
124 See discussion at paragraphs 44-48 of chapter 33
125 Mr Geddes 26 June pages 27-30 at page 29
126 OIG (2011) pdf page 6
127 See chapter 13 para 27, chapter 25 paras 152-154 and chapter 29 para 11
128 Mr MacPherson 27 October page 137; see also Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology, 1999, Chapter V

was not to the fore because identification depended on the number of level two characteristics in agreement.[129] Under the non-numeric approach comparison is based on the aggregate of all three levels of detail.[130]

35.103. Mr Kent, who had sat on a 'third level detail' working group for over a year, said that it proved difficult even to define what third level detail is, let alone quantify it.[131] Professor Champod noted that there was no single definition of third level detail. Examiners classify things as second level which others would classify as third level and vice-versa.[132]

35.104. Some examiners spoke of the possibility of identifying marks relying on third level detail without any second level detail. Mr McGinnies said that trainees are made aware that identification of a mark that has no second level detail is theoretically possible.[133] Mr Wertheim referred to a fingerprint published in the Journal of Forensic Identification where the examiner used only first and third level detail. All of the third level detail was clear and Mr Wertheim agreed with the identification. He had never seen such a mark in his own casework.[134]

35.105. Mr Zeelenberg's approach differed. He observed that only good quality prints can show third level detail. Third level detail cannot stand on its own but rather has to be checked in correlation with second level detail.[135] In his view an examiner can use third level detail as a factor in assessing confidence in relation to the second level patterns that are observed and may therefore be a factor that leads to an identification being made on ten points rather than twelve.[136]

35.106. Professor Champod referred to a survey in which examiners were asked about the strength of a given set of third level detail. The judgment as to the strength varied significantly from one examiner to the other.[137] Professor Champod explained that a good starting point to assess the strength of third level detail is to explore how it is reproduced from one impression to the other as reproducibility is one of the key components in robustness. He stated: "we conducted experiments as to the reproducibility of these features from mark to mark, we noted that the only features which have a good level of reproducibility – by this term I mean that you can expect to find these features in correspondence should a corresponding print be available....are the relative pore positions and the specific shape of minutiae. The form of the ridge edges, the specific forms of the pores are not well reproduced from one impression to the other."[138]

35.107. Professor Champod's opinion is that the lack of reproducibility gives a good indication that such features are not reliable in the identification process and that

129 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, pages 2-4
130 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, pages 93-94
131 FI_0052 para 56 Inquiry Witness Statement of Mr Kent
132 Professor Champod 25 November page 95
133 FI_0193 para 155 Inquiry Witness Statement of Mr McGinnies
134 Mr Wertheim 22 September pages 33-36
135 Mr Zeelenberg 7 October page 53
136 Mr Zeelenberg 8 October pages 44-45
137 Professor Champod 25 November page 96
138 Professor Champod 25 November page 97

third level detail is quite limited in terms of weight. Accordingly, his opinion is that it is not good practice to rely solely on third level detail to individualise.[139]

35.108. The OIG report expressed concern at the reproducibility of third level detail and the risks of 'cherry picking' helpful level 3 detail. The OIG recommended that standard operating procedures (SOPs) should be refined to: "define the circumstances under which the clarity of a latent fingerprint is sufficient to support the utilization of level 3 details to support an identification. The SOPs should also require that the examiner consult all versions of the available known prints of the subject to determine whether any level 3 details utilised are reliably and repeatedly reproduced. The SOPs should require that the examiner apply 'fair reasoning' in utilising level 3 details that support the identification so as to avoid the selective use of supporting level 3 details."[140]

35.109. The review published in June 2011 by the OIG reports on ongoing research which indicates that the appearance of level 3 detail is not consistently reproduced in different friction ridge impressions and can vary depending on the method of capture, pressure applied and the resulting image quality.[141] Maceo's experiments showed, for example, that the prominence of incipient ridges was affected by the degree of pressure applied during deposition of the print.[142] FBI Laboratory training manuals have been revised to emphasise that level 3 detail should only be used when the mark is very clear and where there has been similar deposition pressure in mark and print.[143] In practice FBI examiners are now extremely cautious in relying on level 3 detail and would not let it be decisive if there was insufficient level 2 detail.[144]

35.110. The evidence to the Inquiry is consistent with that review.

The risk of contextual bias

35.111. Subjectivity may be influenced by more than personal traits. Dr Dror and Mr Charlton suggest that contextual bias or circumstantial knowledge can have an effect on decision making by fingerprint examiners.[145] Some of the work carried out at the analysis stage of the ACE-V procedure requires contextual information but there is a limit to the information that is necessary.

35.112. The urgency of a situation may create bias, and urgency is a particular feature of criminal investigations. As the National Academy of Science notes: "Another potential bias is illustrated by the erroneous fingerprint identification of Brandon Mayfield as someone involved with the Madrid train bombing in 2004. The FBI

139 Professor Champod 25 November pages 97, 99-100
140 OIG (2006) pdf page 210
141 OIG (2011) pdf page 25
142 Maceo A. V. Qualitative Assessment of Skin Deformation: A Pilot Study. Journal of Forensic Identification, 2009; 59 (4); page 410
143 OIG (2011) pdf page 25
144 OIG (2011) pdf pages 33-34
145 Dror I,E. and Charlton D. Why Experts Make Errors. Journal of Forensic Identification, 2006; 56: 600; I. E. Dror and others, Contextual information renders experts vulnerable to making erroneous identifications. Forensic Science International 156 (2006) 74-78; but see also Hall, Player, Will the introduction of an emotional context affect fingerprint analysis and decision-making? Forensic Science International 181 (2008) 36-39

investigation determined that once the fingerprint examiner had declared a match, both he and other examiners who were aware of this finding were influenced by the urgency of the investigation to affirm repeatedly this erroneous decision."[146] The possibility of this type of bias is readily apparent in the context of a criminal investigation. A request to compare marks against a limited set of prints may make perfect sense from the point of view of efficiency; but such a request creates the risk of such bias.

35.113. A further way in which bias can arise is by virtue of the way the question for the examiner is framed. The National Academy of Sciences notes: "A common cognitive bias is the tendency for conclusions to be affected by how a question is framed or how data are presented...A series of studies has shown that judges can be subject to errors in judgment resulting from similar cognitive biases. Forensic scientists also can be affected by this cognitive bias if, for example, they are asked to compare two particular hairs, shoeprints, fingerprints - one from the crime scene and one from a suspect - rather than comparing the crime scene exemplar with a pool of counterparts."[147] A risk of this type in the context of fingerprint examination arises when an examiner is provided with only one mark and print to compare, in the knowledge that the mark has been identified, which is the normal approach to verification.

35.114. The research is not all in one direction. The Metropolitan Police has carried out work on the emotional context to fingerprint work. The research involved presenting a mark said to be from a murder scene to create a high emotional context and another from a forgery scene to create a low emotional context. The mark was from a known source, was of poor quality and was at the boundaries of practitioner interpretation. Seventy experts volunteered. Thirty five were given the high emotional context mark and thirty five the low emotional context mark. Personality and demographic data was recorded. There was no significant difference between the decisions in either emotional context and no relationship between the emotional context and the decisions. Analysis showed there was no difference between gender, years of experience and age.[148]

35.115. The National Academy of Sciences refers to the fact that research "has been sparse on the important topic of cognitive bias in forensic science – both regarding their effects and methods for minimizing them."[149] It notes that "forensic science disciplines are just beginning to become aware of contextual bias and the dangers it poses. The traps created by such biases can be very subtle, and typically one is not aware that his or her judgment is being affected."[150]

35.116. The training programmes for fingerprint personnel at local and national level incorporate elements designed to develop and test an individual's ability to remain professionally objective when undertaking fingerprint examinations. A fundamental aspect of the training programmes Mrs Tierney has undertaken and implemented is the encouragement of personnel to challenge constantly their own conclusions,

146 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, page 123
147 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, pages 122–123
148 MP_0008 paras 5.5-5.7
149 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, page 124
150 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, page 185

the conclusions of their colleagues and also to be open and receptive to challenges from others.[151]

Commentary

35.117. The results of research into contextual bias are divided, and, as the National Academy of Sciences noted, research has not been extensive. That some studies at least point to a risk of forensic scientific opinion being influenced by contextual bias, and the FBI finding that the error in the Mayfield case was contributed to by the context of urgency provide a basis for concern that contextual bias may give rise to error in fingerprint identification. Unless the provision of contextual information is absolutely necessary, it should be avoided.

Numeric versus non-numeric approach

35.118. There remains some debate as to whether the non-numeric approach is appropriate. Not least this is because it could be argued that a numeric standard introduces objectivity at least in relation to the fifth question above: can the examiner find sufficient matching characteristics to justify the inference that the mark is uniquely identifiable as having been made by a specific person?

35.119. Mr Chamberlain said that the majority of the members of the EU apply a numerical standard, generally around 12.[152]

35.120. Mr Kent believed that a standard is required for identification.[153] As not enough is known about the statistical distribution of characteristics and the probability of fortuitous or adventitious matches, it is undesirable to have a situation where experts do not have clear guidelines. In particular, he argued that it is unrealistic to expect an expert to know, intuitively, how many other people in the population have a particular subset of characteristics.[154] Significantly, though, he added that a numeric standard is not enough. One must consider image quality and quality control of the processes followed in fingerprint comparison work.[155]

35.121. Mr Zeelenberg was supportive of a numeric approach.[156] A numeric standard is applied in the Netherlands varying from ten to twelve depending on the clarity of the mark.[157] Mr Zeelenberg explained that the 12-point rule is based on the gut feeling of early fingerprint experts including Locard and Galton leading to the view that reliability started somewhere around 12 and that a drop-off in reliability occurred quickly below ten.[158] He pointed to recent statistical surveys which confirmed this, for example the findings of Pankanti, Prabhakar and Jain.[159] They found that if an examiner was wrong with one or two points below 12 there was a

151 FI_0152 paras 112–113 Inquiry Witness Statement of Mrs Tierney
152 Mr Chamberlain 18 November page 4
153 FI_0052 para 61 Inquiry Witness Statement of Mr Kent
154 Mr Kent 7 July pages 52-53
155 Mr Kent 7 July pages 58-59
156 Mr Zeelenberg 8 October page 17ff
157 FI_0115 paras 127-135 Inquiry Witness Statement of Mr Zeelenberg
158 See also Professor Champod 25 November page 67ff for a summary of Locard's three rules.
159 Pankanti S., Prabhakar S. and Jain A. On the Individuality of Fingerprints. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2002; 24(8)

significant drop in reliability and that reliability dropped down dramatically below ten.[160]

35.122. Other witnesses were not supportive of a numeric approach. Mr Nelson thought that a problem with the 16-point standard was that whenever someone found 16 points they believed they could almost create the impression that it was a 'gold standard' and, therefore, could not be challenged. A numeric standard leads to the belief that one can stop when the relevant number is reached and that it is infallible.[161]

35.123. Mr Pugh said that the 16-point standard led to the "hunting out" of points and was thought to be depriving the courts of useful evidence.[162] An examiner could still be 100% certain with less than 16 points[163] but if the 16-point standard applied an examiner could not report it, even if he was confident that a mark could be individualised. The non-numeric approach allows a greater number of identifications to be reported.

35.124. Professor Champod's opinion is that there is no scientific justification for a numeric standard.[164] A strict numeric approach gives each point the same weight when it is known that weight may vary depending on the type and position on the fingerprint.[165] He explained that the prevalence of different types of level 1 features in the population is well documented.[166] Statistical data in relation to level 2 features had been gathered through various research initiatives, and he provided the Inquiry with results from one study, which indicated that some characteristics are much rarer than others, conditional on location on the fingerprint pattern.[167] He argued that a rule which gives equal weight to each point is an inadequate model from a statistical perspective.[168] In addition, he argued that it is restrictive to consider only level 2 detail because level 3 features such as pore position can be taken into account in forming a view.

35.125. A return to a numeric standard would introduce the appearance of objectivity only in relation to the fifth question, with the conclusion remaining overwhelmingly subjective given the first four questions. What is more, it is open to doubt whether a numeric approach would truly add objectivity even in relation to the fifth question given the temptation for examiners to 'hunt out' or 'tease out' points to reach the required number. A numeric standard afforded no guarantee of accuracy; QI2 and Y7 were identified to a 16-point standard.

35.126. There is no merit in returning to a numeric standard. Rather there needs to be greater appreciation, both among fingerprint practitioners and those involved in the criminal justice system, that a conclusion on identity is a subjective opinion reflecting the variables discussed in this chapter.

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160 Mr Zeelenberg 8 October pages 23-24
161 Mr Nelson 13 November pages 6-8
162 Mr Pugh 24 November page 23
163 Miss Hall 24 November page 24
164 Professor Champod 25 November page 70-71. Re studies on the variability of minutiae see also EC_0001 (the literature review prepared for the Inquiry) page 2.
165 Professor Champod 25 November page 70
166 Arches, loops, whorls etc - ED_0003 para 50-54
167 ED_0003 para 58
168 ED_0003 para 59

The limitations of fingerprint methodology

35.127. The issues discussed in this chapter transcend narrow questions about the competence or performance of individual practitioners. Recognising that fingerprint identification is a matter of opinion, not fact, inevitably leads to the need to identify the variables that are relevant to that opinion but more fundamentally ought to focus attention on the limits of the technique itself.

35.128. Returning to the need to maintain perspective,[169] there is no reason to suggest that fingerprint comparison is an inherently unreliable form of identification but practitioners and fact-finders alike require to give due consideration to the limits of the discipline that flow from the significance of sources of variability and the absence of objective standards. '100% certainty'[170] is not a legal requirement for the admissibility of evidence and fact-finders (judge or jury) can readily accept sources of evidence that are known to suffer from limitations (eyewitness evidence being a classic example) and also subjective conclusions. Acknowledging that fingerprint evidence is not '100% certain' need not detract from the true value of this type of evidence but, in any event, what matters is that fact-finders be given a fair presentation of the evidence, its strengths and weaknesses, so that they can determine its weight in any particular case.

35.129. The appropriate manner in which fingerprint examiners should express their opinions is discussed more fully in chapter 38 where it is observed that practitioners who have been accustomed to thinking in terms of '100% certainty' may not readily adjust to 'conditions of uncertainty'[171] and the need to explain their findings in terms of subjective judgments. Since this entails an adjustment to the way that fingerprint examiners practise, the implications reach back to the training, as is discussed in chapter 40. Adjustment begins with recognition that there is a need for more research to explore the sources of variability and to obtain a greater appreciation of the limits of the methodology of fingerprint identification. Meantime, an emphasis needs to be placed on the importance of trainees and qualified examiners not only learning or applying the methodology of fingerprint work, but also being conscious of its limitations and to that end there is a need to engage with members of the academic community working in the field. That engagement will assist fingerprint examiners to be aware of any research of relevance to their work. It may also assist them to be able to articulate their reasoning in support of the subjective judgments that they have made in arriving at their conclusions.

Introduction to recommendations

35.130. The principal recommendations that derive from the discussion in this chapter are the need for fingerprint practitioners and the legal community to acknowledge and adjust to fingerprint evidence as opinion evidence. The full ramifications of that adjustment cannot be foreseen because one of the main consequences is recognition of the need for further research in part to fathom the limits of the technique as currently practised and also to suggest improvements.

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169 See chapter 34

170 See chapter 28 para 26ff

171 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, page 217; and see chapter 38 para 41ff

35.131. Some immediate improvements to practice can be recommended. Firstly, the potential for contextual bias has to be addressed. Secondly, the methodology has to be strengthened. In carrying out analysis fingerprint examiners require to consider whether features in the mark are observable to a lay person with normal eye sight. In the analysis and comparison stages of the ACE-V procedure[172] examiners must think beyond 'events' and give due consideration to the specific type of observed characteristics, especially where more than one type of characteristic cannot be specified. In particular, they must give due consideration to the quality of the similarity between characteristics in corresponding areas of mark and print. In carrying out their evaluation they should pay particular regard to any lack of correspondence between characteristics and the degree of tolerance that would have to be applied to achieve a match. They have to give proper consideration to the degree of tolerance that they are applying in that regard and more generally in the comparison. They should not identify if there is an unexplained difference between mark and print and must carefully evaluate the cogency of any explanations for differences. While a conclusion of identity can be arrived at where there is a lack of precise correspondence in ridge detail in mark and print which is within the proper limits of tolerance or is otherwise capable of cogent explanation, examiners should consider whether the clarity of the mark is sufficient to support a confident conclusion of identity or exclusion, as the case may be. Care should also be taken when relying on third level detail and practitioners should pay close attention to research on the reproducibility of such detail.

Recommendations

The subjective nature of fingerprint evidence

35.132. Fingerprint evidence should be recognised as opinion evidence, not fact, and those involved in the criminal justice system need to assess it as such on its merits.

35.133. Examiners should receive training which emphasises that their findings (as to whether the mark is fragmentary and insufficient or of comparable quality; and, if of comparable quality, whether a comparison with a particular print justifies a conclusion of identification or exclusion or is inconclusive) are based on their personal opinion; and that this opinion is influenced by the quality of the materials that are examined, their ability to observe detail in mark and print reliably; the subjective interpretation of observed characteristics, the cogency of explanations for any differences and the subjective view of 'sufficiency'.

Research and development

35.134. Research should be undertaken into:

(i) distortion and the effect of movement;

(ii) the weight to be given to third level detail, and as to its reliability;

(iii) the frequency of particular characteristics or combinations of characteristics in fingerprints;

(iv) the specific factors that may cause variations among examiners; and

(v) contextual bias.

172 See chapter 36

Engaging with the academic community

35.135. An emphasis needs to be placed on the importance not only of learning and practising the methodology of fingerprint work, but also of engaging with members of the academic community working in the field.

35.136. Fingerprint examiners need to be provided with training to enable them to articulate their reasoning. The SPSA, in conjunction with members of the academic community as appropriate, should determine how best to explain the process of reasoning in arriving at a non-numeric conclusion.

Contextual bias

35.137. The SPSA should review its procedures to reduce the risk of contextual bias.

35.138. The SPSA should ensure that examiners are trained to be conscious of the risk of contextual bias.

35.139. The SPSA should consider what limited information is required from the police or other sources for fingerprint examiners to carry out their work, only such information should be provided to examiners, and the information provided should be recorded.

Fingerprint methodology

35.140. Features on which examiners rely should be demonstrable to a lay person with normal eye sight as observable in the mark.

35.141. In comparing a mark and print fingerprint practitioners should pay close attention to the precise type of the characteristics and carefully evaluate differences in the type of characteristic.

35.142. The SPSA, in conjunction with members of the academic community as appropriate, should design a practical system for examiners to assess and evaluate (a) tolerances and (b) any reverse reasoning.

35.143. Explanations for any differences between mark and print require to be cogent if a finding of identification is to be made.

35.144. A finding of identification should not be made if there is an unexplained difference between mark and print.

35.145. Examiners should consider whether the clarity of the mark is sufficient to support a confident conclusion of identity or exclusion.

35.146. Care should be taken when relying on third level detail in arriving at a finding and practitioners should pay close attention to research on the reproducibility of such detail.

35.147. Where third level detail is relied upon in making a comparison this should be included in any note of the examination.

CHAPTER 36

ACE-V

Introduction

36.1. ACE-V is a process that is regarded as a safeguard. If the protocol is followed, it is said, the resulting evidence is more likely to be reliable. If it is to promote the reliability of fingerprint evidence, the ACE-V process must be robust. This chapter discusses current practice in Scotland and elsewhere in respect of ACE-V and includes recommendations for improvements in practice as regards ACE-V.

Overview of ACE-V

36.2. ACE-V is an acronym for a sequence of working whereby:

(i) an examiner ***analyses*** a mark;
(ii) having done so ***compares*** the mark to a known print;
(iii) having compared the images ***evaluates*** what he or she has seen and reaches a decision; and where
(iv) the results are then subject to ***verification*** by one additional examiner or more.

36.3. Mr Chamberlain and Professor Champod state: "In general, most examiners subscribe to the ACE-V methodology or a comparable protocol (Ashbaugh 1999[1])….[It] implies four distinct stages to the comparison between a mark and a print. In the UK practice (and elsewhere), it is common to find little distinction or clear-cut separation between its stages."[2]

36.4. ACE-V is a description of a structured process that is applied to arrive at a decision. Professor Champod and Mr Pugh said that the ACE-V methodology is not new and it would be wrong to think of a pre ACE-V and post ACE-V fingerprint world as good practice existed before ACE-V. Good practice is to concentrate on the unknown, then move to the comparison, and to assess findings only when one has finished the comparison exercise. It is also good practice to obtain a second opinion, if required.[3] It can probably be described as codifying the thought process that previously existed amongst many fingerprint examiners.[4]

36.5. ACE-V is not a theory or an underpinning fundamental basis for fingerprint examination.[5] It does not, for example, provide guidance to an examiner in deciding whether particular features properly match or differ. It is a protocol that describes the sequence in which an examiner should approach the stages of a comparison exercise.[6] The belief is that if an individual examiner approaches the stages in the proper sequence the risk of individual error is minimised, with the residual risk

1 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology. Boca Raton, Florida: CRC Press, 1999.
2 Champod C. and Chamberlain P. Fingerprints, in: Fraser J. and Williams R. (eds) Handbook of Forensic Science, Willan Publishing, 2009 page 68
3 Professor Champod 25 November pages 103-104
4 Mr MacPherson 27 October pages 136-137 and Mr Geddes 26 June page 37ff
5 Mr Pugh 24 November pages 30-31
6 Professor Champod 25 November pages 43-44

of individual error (including inappropriate subjective judgments) being guarded against by the need for verification by another examiner or examiners.

36.6. While it is possible to give a concise summary of ACE-V under reference to the literature,[7] there is little in the way of consensus as to the precise content of each of the stages of the process. One of the deficiencies identified in the FBI's procedures after the Mayfield case was the absence of definition of the ACE-V process.[8]

Analysis and comparison

36.7. The examiner begins by analysing the less clear image which, in most instances, is the unknown mark.[9]

36.8. There is a degree of controversy as to the extent to which an examiner should identify, at the analysis stage, all of the detail, and in particular level 2 detail, available in the mark before moving on to the comparison stage. There is also some controversy as to the extent to which the analysis stage ought to be documented.

36.9. Professor Champod gave a description of the analysis stage at the hearing.[10] The examiner is ascertaining what reliable information can be derived from the mark. Questions to be asked include whether the image is of a friction ridge skin impression, what the substrate is, whether there is superimposition, a multiple touch, slippage, distortion and so forth.[11] The examiner considers the quality of the mark and what features are visible in it. In relation to the visible features (or events) the examiner considers what type the feature may be (a ridge ending or a bifurcation). It is at the analysis stage that the examiner will "set" his tolerances[12] and consider the reliability of the features. His description of the analysis stage was principally in the context of teaching students and when it came to documentation of the analysis stage he adopted the pragmatic approach that there was little need to document all the minutiae in a mark that was clear and left little room for interpretation. Fuller documentation was required where the mark was of limited quality. The analysis stage concluded with a decision whether the mark was of comparable quality.

36.10. It is only after the analysis stage that the print becomes available to the examiner.[13] Preceding comparison, there is the preliminary stage of considering the quality of the print. Should the print be of poor quality it may be subject to a full analysis

7 Ashbaugh D Quantitative-Qualitative Friction Ridge Analysis, 1999, pages 173-174; and Champod & Chamberlain, Fingerprints, in Fraser et al Handbook of Forensic Science, pages 68-71

8 US Department of Justice. Office of the Inspector General (2011) A Review of the FBI's Progress in Responding to the Recommendations in the Office of the Inspector General Report on the Fingerprint Misidentification in the Brandon Mayfield Case, URL: http://www.latent-prints.com/images/FBI%20Mayfield%20Progress%20062011.pdf page 28

9 If the mark is very clear and clean and the inked prints are smudged it is important to interpret the features in the print first e.g. Mr Wertheim 22 September page 50 and ED_0003 para 18.

10 Professor Champod 25 November page 44ff

11 Professor Champod 25 November page 44

12 See chapter 35

13 Professor Champod 25 November page 57ff

similar to that for the mark.[14] If it is of comparable quality, the examiner proceeds to carry out a comparison. The flow of the examination goes from the general to the particular beginning with the level 1 detail, comparing the level 2 detail and, if that is in agreement, the level 3 detail. The examiner may select a set of features to use as a target to begin with and then proceed across the whole surface working from mark to print.

36.11. With the exception of (1) the reference to the setting of a level of tolerances and (2) documentation of the analysis, the approach of the Metropolitan Police to the analysis and comparison components of ACE-V coincides with the evidence of Professor Champod.[15] The Metropolitan Police do not currently document the analysis and their description of this phase has no reference to any conscious setting of a level of tolerance.

Reasons for a separate analysis stage

36.12. A rationale for a distinct analysis stage is to minimise the risk of reverse reasoning,[16] the concern being that the examiner inappropriately takes account of features in the known print to observe and/or interpret uncertain or ambiguous features in the mark in such a manner as to conclude a match.

36.13. Mr Wertheim said that if a mental image is formed based on the clearer impression, the mind can trick one into seeing things incorrectly in the unclear impression. This is not intentional but it happens that the examiner sees something that he wants to see.[17] Mr Zeelenberg emphasised the importance of a separate analysis stage in the context of a discussion of circular and reverse reasoning, warning that a premature judgment of donorship will steer the examiner to the presumed outcome. He stressed the importance of not reaching conclusions prematurely and then analysing the mark and the print in a way consistent with the premature conclusion.[18]

36.14. From the beginning of their training, SPSA examiners are taught that there is a risk, to be avoided, in going from print to mark.[19]

Approach to analysis and comparison in current SPSA practice

36.15. I have considered whether the analysis and comparison stages in current practice at SPSA have altered significantly from the practices that I have concluded were factors that contributed to the erroneous identifications of Y7 and QI2 Ross. In this I was assisted by the evidence of Mr McGinnies, SPSA Fingerprint Training Officer, and Mrs Tierney, SPSA Fingerprint Unit Manager, Edinburgh.

14 Professor Champod 25 November page 44
15 MP_0008 pdf page 21ff
16 Also called circular reasoning or guided interpretation
17 Mr Wertheim 22 September pages 50-51
18 Mr Zeelenberg 7 October pages 62-64, 101-102; see also Committee on Identifying the Needs of the Forensic Sciences Community, Committee on Science, Technology and Law Policy and Global Affairs, Committee on Applied and Theoretical Statistics Division on Engineering and Physical Sciences, National Research Council. Strengthening Forensic Science in the United States: A Path Forward, Washington, D.C.: National Academies Press, 2009, page 124
19 Mr McGinnies 4 November page 10

A sifting comparison

36.16. Mr McGinnies said that there is not always a clear distinction between analysis and comparison. An examiner may carry out an 'early' or initial comparison on the basis of level 1 detail only (i.e. pattern type such as loop or whorl) and stop there if the patterns do not match. If the pattern is the same, the examiner may return to the analysis before carrying out a more detailed comparison with the print.[20] The justification advanced was that this was an efficient use of time, particularly if there was a large number of marks to be examined.[21]

36.17. The risk with such a 'sift' phase is that the examiner is influenced by information from one of the prints when completing the analysis of the mark. If such an approach is to be employed, the examiner who has carried out the 'sift' should not participate further and a different examiner should carry out the full analysis and comparison. That is the solution that Mr Zeelenberg said was about to be introduced in the Netherlands to deal with the analogous situation where an examiner processes a mark through the AFIS computer system based on an "immature analysis" to find a suitable cluster to search in the database.[22]

Full comparisons

36.18. Analysis in current practice in Scotland is a process in which the following are considered: the general pattern of the mark (whorl, loop, arch, etc); size and orientation; deposition factors and the nature of the surface on which the mark has been deposited; 'movement'; clarity and the development method. At the analysis stage, level 2 detail is considered to the extent that a target group of a relatively limited number of level 2 details becomes the focus of attention. The work done with more advanced trainees involves their identifying and documenting a target group. Qualified practitioners identify a target group of level 2 detail, normally without documenting it, and then work back and forth between mark and print looking for further features in agreement as between the two.[23] Mrs Tierney spoke of ascertaining during analysis what kind of characteristics were in the mark and whether they were of sufficient quality and quantity to enable the examiner to come to a conclusion on the mark in the event of comparison. She would be looking for sequences of characteristics or clusters of characteristics to use as information with which to begin for comparison purposes. She would also be looking to see if there was any other kind of level of detail evident in the mark, and for factors affecting the order and relationship of the characteristics such as movement or pressure.[24]

36.19. There is still no practice of a detailed preliminary analysis of the mark in which all the available level 2 detail, or, should it arise, any level 3 detail, is identified at this stage by the examiner. There is no practice whereby such details are recorded or documented in order that it can later be checked to what extent tolerances may have been applied.

36.20. There is a contrast between the work done with trainees in the early stages of their training, when they will be required to document and annotate all the features that

20 Mr McGinnies 4 November pages 12-13
21 Mr McGinnies 4 November pages 4-5
22 Mr Zeelenberg 8 October pages 27-30
23 Mr McGinnies 3 November pages 156-161
24 Mrs Tierney 12 November pages 56-58

they can see in the mark, and the way that qualified practitioners come to work.[25] Trainees who are sufficiently advanced to be comparing marks and prints make drawings documenting the target area they have identified, but do not document all the available features in the way that the less experienced trainee will.[26] Qualified practitioners do not document even their target area as a matter of routine. Rather, they will hold the target group in their head as they go to look at the known print.[27]

36.21. Mr McGinnies's description of training and practice regarding analysis was consistent with the guidance in Section 6 of the National Police Improvement Agency ("NPIA") Training Manual, which he described as the "Bible for trainees".[28] The draft standard operating procedure spoken to by Mrs Tierney described analysis as establishing the quality of detail in the mark and its suitability for further examination. "All available information such as surface effect, pressure and distortion" should be taken into account.[29]

36.22. With a target group identified, the examiner would then use a glass to compare the unknown mark to the known print. Although early in their careers trainees would be given two glasses and instructed to work from unknown to known, over time individual examiners would devise their own ways of carrying out comparisons with glasses.[30] The examiner would change focus from the mark to the print.[31] Mr McGinnies gave evidence under reference to a presentation prepared by him for Crown Counsel.[32] The slides in that presentation demonstrated working from mark to print, moving backwards and forwards between the two as more features in agreement on the two images were identified. Mr McGinnies accepted that this was a realistic depiction of how examiners worked, although he would wish to amend the presentation to show that the examiner would identify a target group in the mark before starting to move back and forth between mark and print, rather than simply a process of working from a single detail on the mark to a single detail on the print and then repeating the process.[33] An examiner might use pointers in order to keep the place on one image while looking over towards the other for a corresponding feature.[34]

36.23. Mrs Tierney described working with both images, the mark and the print, together under a single glass. She would fold the photograph of the mark so as to be able to place it right alongside the relevant digit on the ten-print form.[35] She would work with one eye closed, and look with the other at the mark and then at the print. She would determine on a cluster of characteristics in the mark then look at a corresponding area in the fingerprint form to see if a particular cluster or sequence was replicated. She would then return to the mark and count from the first cluster to another characteristic or couple of characteristics, then turn again to the known

25 Mr McGinnies 3 November pages 167-168 and Mrs Tierney 12 November pages 56-60
26 PS_0375 and Mr McGinnies 3 November page 160
27 Mr McGinnies 3 November pages 167-168 and 4 November page 6
28 MM_0065 and Mr McGinnies 4 November pages 8-13
29 PS_0238 and Mrs Tierney 12 November pages 75-79
30 Mr McGinnies 4 November pages 14-17
31 Mr McGinnies 4 November pages 17-18
32 CO_4118
33 Mr McGinnies 4 November pages 29-30 and190
34 Mr McGinnies 4 November page 33
35 Mrs Tierney 12 November pages 61-62

print. She would continue working her way through the mark and print until satisfied, or not, as to identification.[36]

36.24. These descriptions of practice bear considerable similarities to the practices described by Mr MacPherson, Mr Stewart, Ms McBride and Mr McKenna.[37]

Reverse reasoning

36.25. Given the rationale for a separate analysis stage discussed in paragraph 12 above, it might be expected that an examiner would be prohibited at the comparison stage in carrying back detail from the print to alter or otherwise influence his prior analysis of the mark. Despite that logic, witnesses at the Inquiry, with the exception of Mrs Tierney, all spoke to reverse reasoning being permitted to some extent.

36.26. Mrs Tierney used only detail that she could see clearly in the mark. She would not 'see' something on the print that helped explain something that she had not previously understood on the mark. She always carried information from the mark to the print. If she could not determine in the mark whether something was dirt or a characteristic or she thought "something might be happening there", that was not something she relied upon.[38]

36.27. The Metropolitan Police recognised that it could be regarded as more objective to take into account only features first identified in the mark[39] but in practice they allow for limited reasoning from print to mark. The limit is that the examiner must at least have seen some 'event' in the corresponding area of the mark and the print can be used to clarify the nature of that 'event'. Mrs Redgewell emphasised that one should never bring anything new to the unknown from the known. The examiner has to have some theory of what the event is and the known then leads to clarification.[40]

36.28. Mr Grigg said that although an analysis of the unknown mark should enable the examiner to determine where the clear features are in their totality, it was inevitable that, as the examiner worked, features would become clearer in the mark.[41] It could be described as an iterative process,[42] though Mr Ashbaugh had described it more colourfully as 'flip-flopping'.[43] Mr Grigg acknowledged that taking facts from the known print into consideration when coming back to the unknown mark could give rise to problems if the examiner was unaware that it was happening, and, significantly, part of his explanation for the iterative nature of the process was that it is impossible to remember all of the clear features observed at the analysis stage.[44] That naturally links to those witnesses who advocated note-taking.

36.29. Mr Zeelenberg was one of those witnesses. During the analysis stage, the characteristics are marked up with annotations dealing with perceived value and confidence levels. All further properties of the mark such as distortions, stains,

36 Mrs Tierney 12 November page 60
37 See chapter 28 paras 8-13, 16-19
38 Mrs Tierney 12 November pages 63-65
39 MP_0008 pdf page 24
40 Mr Pugh, Mrs Redgewell 24 November pages 37-40
41 Mr Grigg 29 September page 8
42 FI_0081 para 19 Inquiry Witness Statement of Mr Grigg
43 Mr Grigg 29 September page 8
44 Mr Grigg 29 September pages 7-9

movements etc are noted. "Any points that are identified have to come from the analysis stage, and not the comparison stage. Points that are real during analysis are real during comparison, and any deviance from the analysis phase in comparison is restricted and should be justified. If it cannot be justified, it must be rejected as being a correct analysis."[45]

36.30. Mr Wertheim suggested a thorough analysis stage, in order to find all points and all other features before proceeding to carry out the comparison. In his view it was permissible to take into account a characteristic first observed in a known print which was not observed in the mark in the analysis stage and he said that this was not an uncommon occurrence. He did, though, add that (1) characteristics first found during the comparison phase are not as reliable and hence (2) more weight should go to the characteristics that had been visible in the analysis phase and (3) it was his practice to take notes.[46]

36.31. Mr Chamberlain allowed for reverse reasoning, provided it was documented. Most examiners can miss characteristics in a mark and so it is practical to allow for reverse reasoning. He anticipated a thorough analysis stage, saying that if the majority of characteristics were found only after looking at the print, clearly this would indicate that something was possibly wrong. He would be very cautious in terms of formulating a finding on such a comparison.[47]

36.32. Professor Champod's approach was similar to Mr Chamberlain's approach. He said that it is too restrictive to suggest that only the features identified during analysis should be used in the comparison. This is on the basis that the analysis has been documented and stored separately from the documentation associated with the comparison. The fact that a feature in the unknown print has been identified or clarified during the comparison stage must then be documented.[48]

Repeated viewing

36.33. There is a more subtle form of exposure to the risk of reverse reasoning and that is where examiners become familiar with specific prints before they examine a particular mark.

36.34. The ACE-V process proceeds on the hypothesis that the examiner has not seen the relevant known prints before. That may be practically difficult in an investigation with many marks, such as the investigation into the murder of Miss Ross. The examiners may become so familiar with certain prints that they take into account sub-consciously their pre-existing knowledge of these at the stage of analysis of the mark. Further, having identified a number of marks as made by an individual the examiners may be influenced by the appearance of those marks when considering other marks, without being aware of it.

45 FI_0115 paras 139-140 Inquiry Witness Statement of Mr Zeelenberg
46 Mr Wertheim 22 September pages 50-54
47 Mr Chamberlain 18 November pages 20-22
48 Professor Champod 25 November pages 60-61

Commentary on analysis and comparison

36.35. The risks associated with the possibility of contextual bias,[49] lack of appreciation of the tolerances being applied[50] and the possibility of inappropriate reverse reasoning indicate the importance of a distinct analysis stage. In particular, those factors suggest the importance of an analysis of the mark as a whole before comparison with the print.

36.36. One of the purposes of the analysis stage should be to assess whether the mark is complex. The need for a separate procedure for such marks is considered in chapter 39.

36.37. Reverse reasoning was identified as one of the causes of misidentification in the Mayfield case.[51] I am satisfied that it was a factor that was also involved in the misidentification by SCRO of Y7 and QI2 Ross.[52] However, despite the rationale for a separate analysis stage and the known risks of reverse reasoning, there was a broad consensus among the witnesses to the Inquiry who discussed this matter that it could be appropriate to permit knowledge gleaned from the print to be carried back to the analysis of the mark, provided safeguards are in place. The appropriate safeguards include proper evaluation, to be discussed next. The need for note-taking has also to be considered in this context. At SPSA it is not standard practice to take notes at the analysis or comparison stage.[53] Notes or drawings as to the sequences of features that have caught the examiner's eye are not taken nor are all of the features on the crime scene mark noted before moving on.[54] Note-taking is more fully discussed and the subject of recommendations in chapter 37.

Evaluation

36.38. A decision should be made after evaluation. The examiner will evaluate all of the available information and come to a conclusion about the identity of the mark.[55] Inevitably, though, the depth of the evaluation will depend on the depth of the preceding analysis and comparison.

36.39. Professor Champod described the evaluation stage as the fundamental inferential step. Reflecting his view that an examiner should set a level of tolerance at the analysis stage and consider the reliability of characteristics, his evaluation exercise entailed a reflection on the level of tolerance and an assessment of the relative weight between the features found in agreement and any observed differences assigned by informed judgment, mainly derived from training and experience.[56]

36.40. Mr Zeelenberg expressed particular concern at the risk of reaching conclusions prematurely. The approach in the Netherlands is to postpone the point at which an examiner reaches a conclusion to a separate evaluation stage in particular in light

49 See chapter 35 para 111ff
50 See chapter 35 para 56ff
51 US Department of Justice, Office of the Inspector General (2006) Review of the FBI's Handling of the Brandon Mayfield Case (Unclassified and Redacted) (US Department of Justice) URL: http://www.justice.gov/oig/special/s0601/final.pdf page 149ff
52 See chapter 28
53 Mr McGinnies 4 November page 6
54 Mrs Tierney 12 November pages 58-59
55 FI_0152 para 28 Inquiry Witness Statement of Mrs Tierney
56 Professor Champod 25 November page 63

of awareness that examiners find it hard to change their minds once they have reached a conclusion. Particularly where the 'multiple procedure' is being applied to complex marks each examiner is required to complete a detailed form as he progresses through analysis and comparison and that gives the means to reflect on the pros and cons at the evaluation stage.[57]

36.41. Mrs Tierney said that an examiner would be evaluating as the comparison proceeded but a benefit of ACE-V is that with evaluation as a distinct phase an examiner takes a 'mental step back'. The examiner considers what has been found to be in agreement, anything in disagreement and anything that has not been accounted for in order to be satisfied with the identification.[58]

36.42. The difference between the process envisaged by Mrs Tierney and that undertaken in the Netherlands is signposted by her use of the phrase a '*mental* step back'. As just mentioned, at SPSA it is not standard practice to take notes during the ACE-V process. Addressing the need for documentation, she said initially that it was not necessary because analysis and comparison is a mental process. But on further questioning she accepted that in a minority of cases there could be merit in the discipline of documenting the process to give the examiner an opportunity properly to reflect if there are quite a lot of "could be's" with the identification.[59]

Commentary

36.43. Evaluation is important. One of the factors that contributed to the error of SCRO's conclusions in regard to Y7 and QI2 was the absence of a formal process to evaluate the nature of the assumptions being made and the tolerances that underlay the assumptions.[60] As a minimum there should be a conscious mental step back before a conclusion is reached but the question is whether that is sufficient.

36.44. To take reverse reasoning as an example, the weight of opinion supports the conclusion that it is permissible to engage in a degree of reverse reasoning provided that the examiner is aware that it is being done and properly evaluates the acceptability of the resulting information. It is difficult to refute Mr Grigg's view that there is an inevitable risk of reverse reasoning because of the inability accurately to remember all of the detail observed on the initial analysis and, in the absence of documentation of the analysis and comparison, it is at least open to question whether the examiner will have sufficient awareness to give rise to the need for due reflection. The OIG report makes this very point: with "an incomplete record of the analysis, over time the examiner may lose track of which came first, features he saw in the latent [i.e. the mark] or features suggested by the exemplar [i.e. the print]." The OIG concluded that circular reasoning may "infect the examiner's mental process, particularly in the absence of standards or safeguards to require the examiner to keep distinct which features were seen in the latent during the analysis and which were only suggested during the comparison."[61]

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57 FI_0201 Inquiry Witness Statement (Supp.) of Mr Zeelenberg. For the 'multiple procedure' see chapter 39.
58 Mrs Tierney 12 November pages 70-71
59 Mrs Tierney 12 November page 94ff
60 See chapter 28
61 OIG (2006) pdf pages 149-161 at 161

Verification

36.45. It is verification that is particularly said to give fingerprint evidence its reliability. A review of the conclusion by another examiner or examiners, using the ACE process, provides a cross-check to ensure that the decision is not based on a marginal subjective judgment of one individual but enjoys acceptance as the consensus conclusion of a number of examiners.

36.46. Under current SPSA procedures the initial examiner's conclusion is verified:

(i) by one examiner in the case of an elimination identification reported to the police;[62]

(ii) by two examiners in the case of an elimination going to court; and

(iii) by a minimum of two examiners in the case of suspect/accused identifications.[63]

36.47. The NPIA teaches that two officers should be involved in verification[64] and that is the practice at the Forensic Science Service (FSS)[65] and PSNI.[66] At the Metropolitan Police at least two examiners verify, the second of whom will come from a pool of nominated senior examiners, and a third examiner will undertake verification in cases where there is a low level of disclosed detail.[67]

36.48. In the Netherlands a different approach is taken depending on the complexity of the mark. Verification of an ordinary mark is carried out by one examiner. For a complex mark two will verify[68] and the case is referred to as a 'multiple procedure',[69] which is discussed in chapter 39.

The constituent elements of 'verification'

36.49. While the number of verifiers may be important, the critical factor is the quality and independence of the process. There are two issues and practice varies on them. The first concerns the seniority of those involved in verification and the second concerns the knowledge that the verifying examiners may have about preceding comparisons and discussions between those involved.

Seniority

36.50. At SPSA there is no requirement for any particular seniority. Any qualified fingerprint officer (i.e. registered in the National Register of Fingerprint Experts and authorised to give evidence under the Criminal Procedure (Scotland) Act 1995)[70] can act as a verifier. No additional accreditation is required.[71] It follows that a junior examiner could verify a senior examiner's findings.

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62 See chapter 37 para 13
63 Mrs Tierney 12 November pages 141-142 and FI_0152 paras 43–44 Inquiry Witness Statement of Mrs Tierney
64 Mr Grigg 29 September pages 3-4
65 FI_0136 paras 33 and 38 Inquiry Witness Statement of Mr Chamberlain
66 Mr Logan 16 November pages 41-42
67 MP_0008 pdf pages 22-23
68 Mr Zeelenberg 8 October pages 4-6
69 FI_0115 para 138 Inquiry Witness Statement of Mr Zeelenberg
70 See chapter 40
71 FI_0193 para 152 Inquiry Witness Statement of Mr McGinnies

36.51. At PSNI the final check will be carried out by someone with at least the rank of senior officer. The position may arise whereby the first examiner is a senior officer and more junior officers carry out verification. The risk of 'peer pressure' is guarded against in various ways. All examiners are aware of the need to get their work right. All examiners are encouraged to question and no one is cajoled into making an identification.[72] At the Metropolitan Police one of a pool of nominated senior examiners, all of whom have expert status, carries out the final verification.[73]

36.52. The approach at FSS focuses on training. Examiners involved in verification must undergo a separate authorisation procedure. This includes coaching and mentoring with particular reference to the need for independence.[74]

Knowledge of preceding comparisons and discussion between examiners

36.53. Practices similarly differ as to the level of knowledge that examiners involved in verification may have, ranging from:

- knowing the result of the examination and the identity of the examiner;
- knowing the result of the examination but not the identity of the preceding examiner;
- not knowing the result or the identity of the preceding examiner; and
- not even knowing one is verifying.

36.54. Ashbaugh presents 'verification' as a "form of peer review" and positively advocates the merits of consultation and discussion between experts during the process. It is, he says, "an excellent vehicle for training" and his text leaves it to the individual examiner to decide whether his objectivity has been compromised by consultation, in which case he should not act as a verifier.[75] That coincides with the evidence given by Mr Geddes not only in relation to practice at SCRO in 1997 but also at SPSA in 2009, leaving aside the period when there was a requirement for 'blind verification' which is discussed below. Mr Geddes spoke to the fact that discussions did take place between examiners involved in the verification process and he commended this as an opportunity for training, the 'independence' of such a system coming from the personal responsibility and professional integrity of the examiners.[76]

36.55. The concern is that discussions between examiners can lead to peer pressure and sub-conscious bias, particularly if a more junior examiner is tasked with verifying the conclusion of a senior examiner. The HMICS September 2000 report made adverse comment on the practice of passing findings from one officer to another during the verification process, in particular from a senior to a junior officer, as not being conducive to a "truly independent" verification process[77] and recommended

72 Mr Logan 16 November pages 41-45
73 MP_0008 pdf page 23
74 FI_0136 para 32 Inquiry Witness Statement of Mr Chamberlain
75 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 148
76 Mr Geddes 26 June pages 37-49
77 SG_0375 paras 5.9.1 and 8.15.2

that: "practices be reviewed with a view to introducing a system that increases the independence within the identification/verification process."[78]

Blind verification: Scottish 'experiment'

36.56. The Change Management Review Team for the ACPOS Presidential Review Group recommended in October 2000 that the processes of identification and verification be separated, with the creation of a dedicated verification team who, though they would know the result of the identification phase, would not know the identity of those involved.[79]

36.57. The Glasgow bureau introduced a system intended to anonymise the process. Identification and verification were split with three fingerprint examiners deployed in a verification unit and another three with a quality support unit and no one of those officers was involved in front line comparison work. This system was resource intensive and there was a delay in introducing it in the smaller Scottish bureaux. The system was not entirely anonymous because there was always the risk that the handwriting of the examiner who had made the initial identification could be recognised from a diary page.[80]

36.58. The system was reviewed in December 2006 by Roger Shearn, a forensic consultant. He was critical of blind verification and recommended an open and transparent system of verification, citing Ashbaugh's textbook and the absence of a requirement for blind verification elsewhere in the UK with the possible exception of Manchester.[81] On transfer to SPSA it was agreed that the anonymous verification process in place at Glasgow would cease. The focus instead was on addressing this issue through other means, in particular encouraging the fingerprint manager at local level to develop, actively, a culture where staff feel able to challenge opinions.[82]

36.59. As at the time of the Inquiry hearings a verifier at SPSA knew the identity of the previous examiner and the conclusion he had reached. Accordingly, if a mark had been identified as having been made by a specific finger the verifier would carry out a comparison of the mark with that finger.[83]

36.60. Mr McGinnies noted that there were risks arising from the fact that the verifier knows the previous examiner's findings. The verifier might be affected, even slightly.[84] His position was that the risks are guarded against by dip sampling, the quality assurance procedures in place in the organisation and the requirement for

78 SG_0375 para 8.15.2 recommendation 23
79 SG_0522 paras 13.4.12-13.4.13
80 Her Majesty's Inspector of Constabulary for Scotland (2003) Third Year Review of SCRO 2000 Primary inspection, published on 22 May 2003, URL: http://www.scotland.gov.uk/Topics/Justice/public-safety/Police/local/15403/publications/7442-1; Her Majesty's Inspector of Constabulary for Scotland (2005) SCRO 2004 Primary Inspection, published on 17 March 2005, URL: http://www.scotland.gov.uk/Publications/2005/03/20826/54258 para 5.23-5.24; HM Inspectorate of Constabulary for Scotland (2006) Review Inspection of Scottish Criminal Records Office Primary Inspection of 2004 published on 15 December 2006. URL: http://www.scotland.gov.uk/Resource/Doc/159565/0043406.pdf para 4.11.1
81 SG_0920 pdf page 4ff
82 FI_0152 paras 84-85 Inquiry Witness Statement of Mrs Tierney
83 Mr McGinnies 4 November pages 38-40 and FI_0193 para 81 Inquiry Witness Statement of Mr McGinnies
84 Mr McGinnies 4 November page 41

several examiners to reach the same conclusion. Dip sampling had not shown examiners following other examiners' conclusions incorrectly.[85]

Practice elsewhere

36.61. Mr Grigg said that verification must be independent. In an ideal situation, each examiner would approach the task without any knowledge of what had gone before with no preconceptions that anybody else had reached any result whatsoever. Critical issues are practicality and resources. In the confines of a fingerprint bureau and the restrictions of the work that needs to be completed, such an approach is not practical. In practice, verifiers will have some knowledge of what has gone before, even if it is simply that someone else has already reached an opinion.[86]

36.62. Mr Wertheim also mentioned resources. Blind verification could take longer to carry out. In the traditional form of verification, all an examiner has to do is look at the one finger. In one scenario of blind verification, the examiner would get all of the latents and all of the inked prints and have to repeat the whole process. There is a time factor involved. The greater concern is the reliability factor and getting rid of confirmation bias. One could limit verification to the one finger and achieve a degree of blindness.[87] Professor Champod was also mindful of resources. He said that blind verification on all conclusions is not cost-effective and is not needed.[88] Neither the Metropolitan Police nor PSNI practise 'blind verification'.[89]

36.63. A number of examiners said that verifiers must not be provided with any indication of the reasons for the preceding examiner's conclusions. The verifier should not be provided with access to a marked up comparator and asked to check the markings, and at PSNI that would probably result in disciplinary procedures.[90] Mr Grigg said that as a minimum the verifier should not have any knowledge of the manner in which the comparison had been carried out, for example marked photographs showing features on which the first examiner had relied, as such a verification would not be independent.[91] At the Metropolitan Police the second and third examiners have no information about the features identified in the preceding examination.[92]

36.64. At Mr Wertheim's laboratory the verifier knows who carried out the previous comparison, he is given the mark and the print and he knows the result. He is also given the working notes and may or may not choose to study those before carrying out his work. The verifier should have the "raw" images unmarked.[93] Mr Wertheim said that blind verification was coming into use in the United States. It had been a source of much discussion within the previous year. The only laboratory of which he was aware that practised blind verification on a regular basis was the FBI. They had 50 or 60 fingerprint experts. The FBI had certain criteria by which

85 Mr McGinnies 4 November pages 45-46
86 Mr Grigg 29 September pages 14-15
87 Mr Wertheim 22 September pages 66-67
88 Professor Champod 25 November page 79
89 Mr Pugh 24 November page 41 and Mr Logan 16 November pages 41-42
90 Mr Logan 16 November pages 41-43
91 Mr Grigg 29 September page 6
92 MP_0008 pdf pages 22-23
93 Mr Wertheim 22 September page 64

an identification was mandated to go to a blind verification. He thought it would probably become a standard within the next five to ten years.[94]

36.65. The OIG suggested introducing 'blind decoy' prints into the verification process, to ensure that the verifier was doing a careful job, and not merely 'rubber stamping'.[95] The June 2011 review discloses that the FBI adopted a different approach to avoid excessive disruption to the pace of casework. Blind verification is undertaken at the FBI only in limited circumstances: in cases where only one print is individualised, excluded or regarded as inconclusive;[96] in any case where examiners disagree; and possibly also for complex marks, cases where an examiner changes his opinion and in other situations at the discretion of a supervisor.[97]

36.66. Mr Zeelenberg's general view was that verification should be as 'blind' as possible. The approach originally suggested by the OIG is not dissimilar to the approach suggested by him. In the Netherlands a new system has been introduced whereby a verifier will not know whether he is a verifier or not. The verifier will not know whether the mark has already been compared, nor will he know of any results.[98] The result is that the verifier will have no preconceptions as to the potential outcome.

36.67. Mr Chamberlain's view was that blind verification is unnecessary. With the correct training, in the correct environment, assurance by an independent check is sufficient. He did not see the need to move to blind verification.[99]

36.68. Professor Champod emphasised the importance of notes in this context. He said that if the verifier knows the conclusions of the preceding examiner the verification can still be considered independent, as the verifier will document the features he has used independently from the first examiner. It is possible to review the documents and discuss the features that have been used by both. Documentation plays an important role. The fact that the verifier knew about the conclusion of the first examiner did not worry him.[100]

Discussion between examiners and panel reviews

Position in Scotland

36.69. In 1997 SCRO maintained a distinction between the situations where (1) a verifying examiner was doubtful but not positively in disagreement and (2) where the verifier was positively in disagreement.[101]

36.70. In its September 2000 report HMICS noted that fingerprint comparison is a matter of opinion and there would be occasions where there were disagreements over an identification. The recommendation was that a national policy be established

94 Mr Wertheim 22 September pages 65-66
95 OIG (2006) pdf page 216
96 OIG acknowledges that it is counterintuitive to submit a single exclusion or inconclusive finding to blind verification in cases where multiple marks have been identified to a particular person, but that is the system.
97 OIG (2011) pages 43-45
98 Mr Zeelenberg 8 October pages 27-31
99 Mr Chamberlain 18 November page 31
100 Professor Champod 25 November page 80
101 See chapter 23 para 44

to deal with all erroneous and disputed fingerprint identifications[102] and HMICS envisaged review by an external body.[103]

36.71. That recommendation addresses the second scenario (i.e. instances of disagreement) and at the time of the hearings a formal questioned identification procedure[104] was under development to deal with it.[105] The draft made available to the Inquiry did not contain all the detail but Mrs Tierney outlined the proposal. Any conclusion of identity which had been queried by a verifier would be reported to the unit manager and the case material would be removed from the bureau and submitted to a panel of nominated experts for review. The conclusions of the nominated panel would be accepted as final.[106] The constitution of the panel was not contained in the procedure[107] and also the draft did not specify what would happen to the identification if the panel said it was an identification whilst an examiner continued to state that it was not.

36.72. Mrs Tierney reported that no case had arisen calling for the formal questioned identification procedure to be applied; positive disagreements among examiners are "a rare occurrence".[108] In practice it is the first scenario that remains more common: there are occasions when examiners involved in the ACE-V process do entertain doubts or are uncertain and it remains the case that there can be informal discussions between examiners.

36.73. The draft questioned identification procedure also addresses this scenario and was briefly discussed by Mrs Tierney.[109] If one examiner identifies and the second is doubtful, i.e. questions whether the observed features are of sufficient quality for an identification to be made, the two examiners discuss matters. If agreement is reached the fact that they have had a discussion has to be recorded in the diary page but the case continues in accordance with the normal examination process. If the two examiners cannot agree by informal discussion it is referred to a line manager and a facilitated discussion takes place. If they agree at that stage the matter will be noted in the diary page. The possibility of going to a panel would arise only in the event of a failure to agree at a facilitated discussion.

36.74. Mrs Tierney supplied further information to the Inquiry having checked the records of the Edinburgh bureau.[110] In that bureau 433 cases resulted in identifications between March and November 2009. In 28 of those cases a difference of opinion between the first examiner and one of the verifiers was recorded. In none of these cases did the verifiers challenge the identification. What the examiners questioned was the quality or clarity of the mark, and they were reluctant therefore to confirm the identification. In each case, the examiners agreed to report that mark as insufficient to come to a conclusion. Other marks were in each case identified to the person in question. The fact that a discussion had taken place was recorded but was not disclosed to the prosecution.

102 Recommendation 13
103 SG_0375 para 5.20.4
104 MM_0073
105 See Mrs Tierney 12 November page 30ff
106 FI_0152 para 30 Inquiry Witness Statement of Mrs Tierney
107 Mrs Tierney 12 November pages 33-36
108 Mrs Tierney 12 November pages 35-36
109 FI_0152 paras 35–37 Inquiry Witness Statement of Mrs Tierney
110 MM_0154

36.75. The evidence of Mr McGinnies[111] and Mr Geddes[112] confirmed that informal discussions do take place between examiners at the verification stage and, at least anecdotally, their evidence would support the view that that can lead to a verifier agreeing an identification despite some initial doubt, though it may not necessarily have that result. Both referred to the possibility that an identifying examiner could demonstrate the identification on a comparator machine for the benefit of a verifier, for example, if the verifier had doubts about the sufficiency of the points for an identification. That is consistent with the draft questioned identification procedure which states that at the stage of either informal discussions or a facilitated discussion the examiners are able to obtain enlargements or use the comparator if they feel it is relevant.[113] They confirmed that such discussions would now be recorded in the diary page. Mr McGinnies was not aware of any situations where the verifier's doubts had caused the first examiner to change his opinion without the matter moving to a formal process. He indicated that in such an instance the identification would, if formally recorded, be recorded as a misidentification.[114]

36.76. Apart from the fact that discussions would now be noted in the diary page, the evidence of Mr Geddes was that practice had not essentially changed since 1997. The evidence of Mr Geddes was that until shortly before the Inquiry hearing if the verifier remained doubtful after a facilitated discussion that would be the end of the matter. As at the date of the hearing practice had changed with the unit manager having the option to take it further. It was not known whether that could result, as it had in the case of Y7, in the possibility that a doubtful examiner could drop out and the identification be verified by others[115] or if the more formal panel option would apply at that stage.

36.77. Mr Geddes argued strongly that it was acceptable for informal discussions to take place at the verification stage, the professionalism and integrity of the verifier still providing the necessary 'independence'.[116]

Practice elsewhere

36.78. Contemporary practice varied in other bureaux. Again a distinction has to be drawn between (a) cases where one examiner has a doubt and (b) cases involving disagreement.

36.79. FSS practice was explained by Mr Chamberlain:

1. A peer review discussion can take place between the first examiner and a verifier. The two examiners might formulate a consensus opinion and this would be documented, as would any of their findings. If they could not reach a consensus it could come to Mr Chamberlain as the lead examiner to decide what the conclusion should be. Mr Chamberlain accepted that this practice might be viewed as compromising independence but he viewed it as practical and was comfortable with it because FSS had well established examiners with considerable experience.[117]

111 Mr McGinnies 4 November pages 51-58
112 Mr Geddes 26 June pages 42-58
113 MM_0073
114 Mr McGinnies 4 November pages 57-58
115 Mr Geddes 26 June pages 42-58
116 Mr Geddes 26 June pages 42-48
117 Mr Chamberlain 18 November pages 32-34

2. FSS has a procedure for cases where there is a difference of opinion between examiners. The procedure involves Mr Chamberlain, as lead examiner, having access to full written reports by the examiners. He might use another examiner who had had nothing to do with the case to review matters. He will review the mark and print and reach his own conclusion before studying the notes of his colleagues. Mr Chamberlain had no experience of sending out a report of an identification that had not been agreed by the first and second examiners.[118]

36.80. PSNI examiners are encouraged to talk but not to persuade. Ultimately it is the examiner who makes his own decision.[119] At PSNI if there is an individual who is unhappy about an identification it is automatically referred to an arbitration panel. That panel decides whether that identification goes out. The members of the panel have no connection to the case. Each member sees the mark without being aware of the decision of the other panel members and without any knowledge of the case. If the panel is unanimous as to identification it can be reported out. The fact that there has been a dispute would not be reported to the prosecution authorities or recorded in the report. It would be recorded in the notes and a defence expert could review the notes.[120]

36.81. The Metropolitan Police approach is different in relation to examiners who have any doubt. If guidance is sought from another examiner the advising examiner is excluded from any involvement in verification. A verifier cannot consult with a preceding verifier/identifier, or make use of any of their findings.[121] At the Metropolitan Police if an identification is disputed it is referred to an assessment panel of three senior experts. Each member reviews the mark independently. The panel sat once during the 18 months before Mrs Redgewell gave oral evidence.[122]

36.82. In the Netherlands the procedure known as the 'multiple procedure' is followed.[123]

Commentary on independent verification

36.83. Independent verification is essential, the issue being what degree of 'independence' is necessary.

36.84. For reasons of practicality and resource, the approach to verification needs to be proportionate. As mentioned earlier blind verification was tried in the Glasgow bureau and abandoned on external advice. Not even the FBI has it as a universal requirement. In many instances it will be acceptable that, as in current practice, a verifier at SPSA knows the identity of the previous examiner and the conclusion reached and accordingly carries out a comparison of the mark with a particular fingerprint. However, as the Inquiry heard, there is a case for an enhanced process in some circumstances.[124]

36.85. Nonetheless, it is undesirable that there should be consultation between a verifier and the initial examiner (or between verifiers) to discuss the comparison before the

118 FI_0136 para 41 Inquiry Witness Statement of Mr Chamberlain
119 Mr Logan 16 November pages 46-47
120 Mr Logan 16 November pages 46-50
121 Mrs Redgewell, Mr Pugh 24 November pages 42-43
122 Mrs Redgewell, Mr Pugh 24 November pages 43-44 and MP_0008 pdf page 23
123 The procedure is described in chapter 39.
124 See chapter 39

verifier has arrived at a conclusion. A verifier should not view a marked comparator, let alone observe a demonstration by an identifying examiner, nor should a verifier discuss any doubts or questions with any identifying examiner. A rule excluding consultation between examiners before the ACE-V process is completed is not intended in any way to impugn the integrity or professionalism of examiners. Rather, it reflects the rationale of the ACE-V protocol itself. If that protocol is to guard against inappropriate subjective judgments, it is essential that those who participate are not exerting influence (consciously or sub-consciously) on each other.

36.86. Any discussion among the examiners involved in the ACE-V process should take place after each has reached a conclusion. This is considered in the next section of this chapter.

36.87. There is merit in the FSS approach requiring those involved in verification to be given training stressing the need for independence.

36.88. Judge Edwards has commented on the "unfathomable willingness among some professionals in the forensic science community to stick with the idea that a forensic science practitioner is bound to get better with practice and experience"[125] and that habit was manifest in SCRO and underpinned the inappropriate hierarchical philosophy that contributed to the misidentification of Y7.[126] Examiners should operate in an environment where an open and challenging culture exists irrespective of the seniority of the other examiners involved. To that end, standard operating procedures should positively encourage open and frank discussion. In order to avoid compromising the independence of the verification process the stage at which discussions take place between examiners requires to be managed appropriately (as discussed in the next section of this chapter) but the more critical point is that the views of all examiners are deserving of equal consideration on their merits irrespective of seniority. In particular, standard operating procedures should emphasise that the level of tolerance that can be applied in explaining differences between mark and print requires careful consideration of the quality of the mark and is not determined by the seniority of the examiners.

36.89. Provided that examiners are trained in the need for independence and encouraged to be independent there would be no need to prohibit an examiner from verifying an identification made by a more senior examiner.

Differences of opinion

36.90. The approach to be taken to verification is one aspect of the need, discussed in chapter 38, to re-assess the approach of fingerprint examiners to differences of opinion.

36.91. Practitioners should conduct their individual ACE comparisons conscious of the fact that they are working in a field where there is no certainty and where there is

125 Judge Edwards, "Solving the Problems That Plague the Forensic Science Community", keynote address at the conference on Forensic Science for the 21st Century: The National Academy of Sciences Report and Beyond, Arizona State University, 3 April 2009 URL: http://lst.law.asu.edu/FS09/pdfs/H.T.%20Edwards,%20Solving%20the%20Problems%20That%20Plague%20Forensic%20Science.pdf page 8

126 See chapter 28 para 38ff

scope for differences of opinion. When it comes to verification examiners should be encouraged to be open and to adopt a challenging attitude. The fact that one examiner reaches the opposite conclusion from another, or entertains any doubt, does not necessarily cast any aspersion on the competence of either examiner.

36.92. Current SPSA procedures, in common with those of other bureaux, imply a distinction between (a) an examiner entertaining doubt and (b) an examiner disagreeing with the conclusion. While those cases do differ by degree, they do have the same common origin: an examiner is recognising some uncertainty. Recognition of some specific source of uncertainty requires due consideration whether it is so significant as to lead to disagreement or gives rise only to a potentially transitory doubt. The significance of an uncertainty that one examiner may recognise, even if it stops short of disagreement with the finding, is that it affords all of those involved in the comparison to reflect on the reliability of their own reasoning and hence the conclusion. The by-passing of Mr Geddes during the verification of Y7 is a case in point.[127] The need to develop a procedure to manage comparatively rare instances of disagreement should not detract attention from the equally important requirement to have an effective system for the management of doubt.

36.93. There is merit in the practice of the Metropolitan Police. Where the first examiner has doubt and seeks advice from another examiner the advising examiner should be excluded from any involvement in verification. Furthermore, a verifier should not consult with a preceding verifier/identifier, or make use of any of their findings. Each examiner involved in the ACE-V process should come to his own conclusion before there is any discussion among them. However, the existence of doubt continues to have potential relevance even if an examiner, having discussed the matter with someone outside the process, has allayed the concern. As will be discussed in chapter 39 I have accepted the argument that there is a need for a special procedure for 'complex' marks. There is a lack of a definition for what should constitute a 'complex' mark but a case where an examiner has laboured under any doubt, especially if that has necessitated advice being sought elsewhere, would qualify. The recommendation is that the procedures for handling 'complex' marks should include a technical review of the substantive reasoning of each examiner. If examiners have resolved a doubt by mutually exclusive reasoning (take, for example, the conflicting interpretations by Mr MacPherson and Mr Mackenzie of SCRO points 1, 10 and 16, and 11 and 12 in QI2 Ross)[128] the consensus between them as to the result or finding is potentially diminished by the inconsistency in their reasoning. Requiring them to participate in a technical review which exposes that inconsistency affords an opportunity for them to reflect on the robustness of the finding.

36.94. The same philosophy should carry forward into procedures for facilitated discussions and the handling of disagreement among examiners. The September 2000 HMICS report envisaged review of disputed identifications by an external body.[129] There continues to be a need for a procedure for a review panel to deal with cases of unresolved disagreement between examiners but now that fingerprint

127 See chapter 28 para 41
128 See chapter 26
129 SG_0375 para 5.20.4

work is under the control of SPSA, an organisation with national coverage, there is no need for the review panel to have any 'external' membership. In the event that it is necessary for a review panel to be convened, the members of the panel should in the first instance arrive at their own personal conclusions before any panel discussion. The panel discussion should cover the reasoning of the panel members and also that of the earlier examiners in order to reflect on any source of uncertainty. If, having given due consideration to the reasoning of the earlier examiners, the panel members are unanimous, then the result can be reported.

36.95. This is, of course, without prejudice to the separate issue of the provision of information to COPFS. Current practice should be maintained with any discussions relating to the comparison at any stage in the ACE-V process (even seeking of advice from another examiner who is not involved in verification) being recorded in the diary page. Standard operating procedures should, however, require that when results are being reported COPFS be told of any informal discussions, any facilitated discussion or panel review.

ACE-V's limitations

36.96. The recommendations in this chapter are intended to enhance the benefits which accrue from adherence to the ACE-V protocol but it is important to note the limitations of this protocol. Reference may be made to the report of the National Academy of Sciences:

> "ACE-V provides a broadly stated framework for conducting friction ridge analyses. However, this framework is not specific enough to qualify as a validated method for this type of analysis. ACE-V does not guard against bias; is too broad to ensure repeatability and transparency; and does not guarantee that two analysts following it will obtain the same results. For these reasons, merely following the steps of ACE-V does not imply that one is proceeding in a scientific manner or producing reliable results. A recent paper by Haber and Haber presents a thorough analysis of the ACE-V method and its scientific validity. Their conclusion is unambiguous: 'We have reviewed available scientific evidence of the validity of the ACE-V method and found none.' Further, they state:
>
> '[W]e report a range of existing evidence that suggests that examiners differ at each stage of the method in the conclusions they reach. To the extent that they differ, some conclusions are invalid. We have analysed the ACE-V method itself, as it is described in the literature. We found that these descriptions differ, no single protocol has been officially accepted by the profession and the standards upon which the method's conclusions rest have not been specified quantitatively. As a consequence, at this time the validity of the ACE-V method cannot be tested.'"[130]

36.97. While ACE-V has an important role in ensuring that fingerprint evidence is reliable, adherence to it does not of itself secure reliability. Excessive reliance on ACE-V as a means of guarding against mistakes and bias is to be avoided. The evidence to the Inquiry suggests a lack of consensus as to a range of practical matters relating

130 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, pages 142–143

to the content of ACE-V and, in any event, examiners require to make subjective assessments throughout the stages of ACE-V. Accordingly, even where this protocol is followed, subjectivity remains intrinsic to friction ridge analysis.[131]

Standard Operating Procedures

36.98. The need for a national guidance manual on fingerprint standards and procedures formed part of the recommendations of the HMICS report.[132] The 2006 OIG report recommended that standard operating procedures give detail regarding each of the components of the ACE-V process.[133] The conclusion of that report is as true of the Asbury/McKie cases as it was of Mayfield:

> "Given the fact that four different examiners made the same error, we believe that the more systemic causes described [in the report] were in play. The fact that the examiners' conduct contravened no existing standards suggests that more detailed and explicit standards are needed."[134]

36.99. That is all the more compelling when it is recognised that some of the same systemic causes led to the errors in relation to Y7 and QI2 Ross. The OIG report identifies the need for detailed guidance on (1) circular reasoning, (2) explanations for differences and (3) the weight to be applied to ambiguous ridge detail in the mark that an examiner may clarify after viewing the print. These were all factors central to Y7 and QI2 Ross and remain critical subjective elements in fingerprint methodology not covered by SPSA standard operating procedures.[135] These matters are addressed in training but they are pivotal to the reliability of all work by fingerprint examiners and merit being kept constantly to the fore by explicit guidance in standard operating procedures.

36.100. Standard Operating Procedures should detail the stages of ACE-V with practical guidance on matters such as reverse reasoning.

36.101. Fingerprint bureaux should always keep their processes under review and should seek to learn from each other. The Inquiry benefited from extensive evidence from practitioners as to good procedural practice. It is impracticable to reproduce all of that evidence in this Report but it is hoped that the evidence will assist practitioners in this regard.

36.102. When assessing fingerprint evidence the legal community should be aware that the procedure followed by the examiner can influence the outcome of the substantive examination. Accordingly when assessing the reliability of fingerprint evidence they should have regard to the process employed, and focus on matters such as the danger of reverse reasoning, the importance of having a separate stage of evaluation and a robustness of the independence of the verification.

36.103. Although the risk of error can be mitigated in a number of ways fingerprint examiners should be mindful that no process can be error free; and that should

131 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, page 139
132 SG_0375 paras 5.11.3, 5.20.4 and 8.15.2; the O'Dowd report (2006) agreed that this recommendation had been discharged – see chapter 33 para 32
133 OIG (2006) pdf pages 207-208
134 OIG (2006) pdf pages 209-210
135 Mrs Tierney 12 November page 81ff

also be borne in mind by the legal community when assessing the reliability of fingerprint evidence.

Recommendations

Standard Operating Procedures

36.104. The SPSA should revise Standard Operating Procedures to take into account the recommendations in chapter 35.

36.105. The SPSA's Standard Operating Procedures should set out in detail the ACE-V process to be followed.

Exceptions to strict application of ACE-V

36.106. Steps should be taken to reduce the risk of over-familiarity with prints where an examiner has prior knowledge of the print before conducting an analysis of the mark:

(i) Examiners should be made aware of the risks arising from over-familiarity with prints, by way of written guidance and training.

(ii) As wide a range of examiners as possible should be involved in the work when this risk is present. As an example, when an identification is made in such circumstances at least one verifier should be an examiner who has not previously seen the prints in question.

36.107. If a 'sift' phase is employed, the examiner who has carried out the 'sift' should not participate further and a different examiner should carry out the full analysis and comparison.

ACE-V

Analysis

36.108. At the analysis stage an examiner should assess the quality of the mark. If the examiner considers it to be complex this should be recorded and the separate process for complex marks recommended in chapter 39 should be followed.

36.109. As thorough analysis is an important safeguard against reverse reasoning, before comparison commences the whole mark should be analysed. The approach whereby only a target area is analysed for all levels of detail should be discontinued.

36.110. Fingerprint examiners should assess tolerances during the analysis stage so that when they come to evaluate whether the mark and print match they are conscious of the risk of applying excessive tolerances.

Comparison

36.111. Characteristics first found at the comparison stage should be included in any note of the examination. Less weight should be attached to such characteristics.

Evaluation

36.112. Although evaluation may be taking place throughout the analysis/comparison part of the ACE-V process, emphasis should be placed on the need for a separate E - evaluation - stage.

36.113. SPSA guidance to fingerprint examiners should emphasise the need at the evaluation stage to reflect on: tolerances, the quality of similarities, the nature of

differences, any explanations for differences, the extent to which reverse reasoning may have been employed and the sufficiency of matching characteristics.

Verification

36.114. All verifiers should be experienced examiners who have been given special training for this task, stressing the need for independence.

36.115. A verifier should not be told of the preceding examiner's reasoning before completing A-C-E. It follows that the verifier should not be shown, for example, a photograph or comparator screen marked up to show points of similarity.

36.116. A verifier should not be someone who has been consulted for advice on the mark by the original examiner in the course of his or her examination.

36.117. No discussions should take place between verifiers and preceding examiners until they have completed their work and reached their conclusions.

Differences of opinion

36.118. Practitioners should conduct their individual ACE comparisons conscious of the fact that they are working in a field where there is no certainty and where there is scope for differences of opinion. When it comes to verification, examiners should be encouraged to be open and to adopt a challenging attitude to the opinions of other examiners, irrespective of seniority. Standard Operating Procedures should emphasise that the fact that one examiner reaches the opposite conclusion from another, or entertains any doubt, does not necessarily cast any aspersion on the competence of either examiner.

36.119. The SPSA should review its Standard Operating Procedures relative to handling differences of opinion and provision should be made not only for cases of disagreement between examiners but also for instances where an examiner has some doubt about the finding which is being verified.

36.120. Where an examiner has doubts, the comparison should be processed in accordance with the complex marks procedure recommended in chapter 39.

36.121. The SPSA should amend its procedures to include a review panel to consider any disagreement between examiners:

(i) Where there is a disagreement between examiners the further investigation should be conducted by a panel the members of which should have had no prior involvement with the mark in question but need not come from outside SPSA.

(ii) The members of the panel should each examine the mark independently without any background information about the case or knowledge of the conclusions of the other panel members.

(iii) Once the panel members have reached their own conclusions, they should, as a panel, look at the reasoning of the earlier examiners.

(iv) A result of the review should be that examiners understand why they came to different views.

(v) If the panel members are unanimous, then the result can be reported.

CHAPTER 37

DOCUMENTATION OF FINGERPRINT WORK AND COURT REPORTS

Recommendations after *HMA v McKie*

37.1. The HMICS September 2000 report said: "Moving to a non-numeric standard will result in a range of approaches for an expert to reach a conclusion. Because these will not always be as straightforward as 'counting points', HMIC believes there is a need for experts to record their reasoning and findings in each case…. While it is acknowledged that this may be time consuming, it is believed to be necessary in terms of accountability and transparency. In practice it is recording the processes which the expert already goes through."[1]

37.2. The Change Management Review Team set up by the ACPOS Presidential Review Group (October 2000), recommended that notes should be made. It was envisaged that these would be more extensive when the quality of marks under examination was poor.[2]

Current SPSA practice: documentation of fingerprint work

37.3. Mrs Tierney explained the documentation used in current fingerprint practice. There were indications that there remained some local variations as between the different bureaux but her evidence gives the common base.[3]

The case envelope

37.4. Lifts and photographs are received into the fingerprint bureau from the scene examination branch in an A5 envelope[4] with a scene examination branch worksheet recording what the scene examiner found and an examination request. The case is logged in the office management system by an administration assistant who adds a diary page to the contents of the envelope.[5]

The diary page

37.5. In her Inquiry Witness Statement Mrs Tierney introduced the diary page with this explanation: "My understanding is that the diary page of a case file was introduced in order to deal with a recommendation by HMIC that notes should be made on identifications. If there is something about a comparison which the expert feels should be recorded about the mark or the comparison then this will be done on the diary page."[6]

37.6. Her oral evidence pointed to a more limited document.

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1 SG_0375 para 8.1.9 to 8.1.10
2 SG_0522 pdf page 122 at 13.4.13
3 Mrs Tierney 12 November page 120ff
4 MM_0116 is an example.
5 Mrs Tierney 12 November page 121
6 FI_0152 para 23 Inquiry Witness Statement of Mrs Tierney

37.7. The diary page[7] does provide a record of which examiner has seen which print and what conclusion each has reached.[8] It is understood that the diary page will also contain a record of any discussion between examiners at the verification stage where one of the verifiers, though not positively disputing the identification, has had any doubt about it.[9] As recorded in chapter 36, Mrs Tierney was able to consult the records of the Edinburgh bureau and to advise the Inquiry of the number and outcome of such discussions.

37.8. The diary page does not necessarily record the examiner's reasoning nor the detail of the findings: "there was an understanding that you could record your reasoning and findings on the diary page but there was not, as far as I am aware, a formal requirement to record characteristics and what you find, in the sequence you find them in, covered in the standard operating procedures and there is not a requirement for that at the present time."[10]

37.9. Mr McGinnies confirmed that for qualified examiners, unlike trainees, it was optional to keep notes of the detail of a comparison.[11]

37.10. The absence of documentation of reasoning was justified by Mrs Tierney on the basis that analysis and comparison are essentially practical: "a mental process".[12] She also cited impact on turnaround times, particularly given that only 6% of the work in the Edinburgh bureau resulted in a request for a court report and that, when a request was made for a court report, the examiners would often have to carry out fresh comparisons relative to fingerprint forms obtained when the suspect was charged.[13]

37.11. As at the time of the Inquiry hearings the diary page was not disclosed to the Crown.

Examination record

37.12. The results of the examinations are tabulated in a single document that also records the initials of the examiners involved.[14]

Stage 1 report or communication

37.13. A stage 1 report[15] is submitted to the police, essentially to inform the police as part of the intelligence gathering exercise. In recent times, in order to improve turnaround of work, such a report could be based on a shortened verification procedure where multiple marks were involved. Normally a total of three verifiers would be required for an identification.[16] Where multiple marks were found it may be that the whole number would be checked by a total of two examiners with the

7 MM_0117 is an example.
8 Mrs Tierney 12 November page 121ff
9 Mrs Tierney 12 November pages 30-31, 178, Mr McGinnies 4 November pages 50-58, 92-94 and Mr Geddes 26 June pages 46-49
10 Mrs Tierney 12 November page 111
11 FI_0193 paras 138-139 Inquiry Witness Statement of Mr McGinnies
12 Mrs Tierney 12 November pages 92-93
13 Mrs Tierney 12 November pages 95-97
14 Mrs Tierney 12 November pages 124-125; MM_0118 is an example.
15 MM_0119 is an example.
16 See chapter 36

third examiner verifying only one of the marks. Alternatively, the bureau might agree with the police to identify only a selection.[17]

Current SPSA practice: court reports

Introduction

37.14. Before looking at the content of material prepared for court it is necessary to refer briefly to other changes that have occurred in the criminal justice system since 1997.

Case management at COPFS

37.15. One particular change at COPFS in the period since the cases of *HMA v Asbury* and *HMA v McKie* is that the way in which the Crown normally prepares for complicated cases has altered, with an emphasis on greater involvement by a nominated advocate depute from a very early stage through a system of early allocation.[18] Whilst there was some early allocation back in the 1990s it is now more rigorous and more commonly found in complicated cases. A nominated advocate depute should be responsible from the start of the case for the progress of the investigation and the prosecution.[19]

37.16. A perjury case such as *HMA v McKie* would fall now into the early allocation system, as it was unusual and the individual was a serving police officer. After the initial decision by a Law Officer, the matter would then be allocated to a specific advocate depute who would work with the area High Court Unit to progress matters. There are regular meetings and instructions and in all strategic matters the advocate depute makes the decision. The same advocate depute remains with the case throughout.[20]

Changes to High Court practice

37.17. Since the events the Inquiry was considering, there have been various legal procedural changes following a review by Lord Bonomy.[21] Mr Pattison thought that perhaps the most significant is the introduction of preliminary hearings which mean that a trial date is not fixed until the judge is satisfied that the Crown and the defence are prepared. Through judicial management of the preliminary hearing, a point should be reached where each side knows what the other side's position is so far as possible.[22]

Changes concerning fingerprint evidence

37.18. In the context of the move to the non-numeric approach and other developments such as changing disclosure requirements[23] internal COPFS guidance was re-assessed in conjunction with SPSA to ensure that all materials were up-to-date

17 Mrs Tierney 12 November page 125ff
18 Mr Pattison 13 November pages 137-139
19 Mr Pattison 17 November pages 3-4
20 Mr Pattison 17 November pages 4-6
21 The Hon Lord Bonomy. Improving Practice: 2002 Review of the Practices and Procedure of the High Court of Justiciary. The Scottish Government, 2002. Criminal Procedure (Amendment) (Scotland) Act 2004 asp 5
22 Mr Pattison 13 November pages 131-133
23 FI_0114 para 29 Inquiry Witness Statement of Mr Pattison

and the relevant guidance is included in a Crown Office Circular 8/2009,[24] the Book of Regulations, the Precognoscer's Handbook and the Practice Manual.[25]

Request for evidence from COPFS

37.19. On request from COPFS, SPSA fingerprint examiners provide a joint report, book of evidence and statements.[26]

37.20. Mrs Tierney said that when a request is received for a court report in relation to fingerprint evidence all identifications contained within the case will be re-examined against the charge set of prints and all will be subject to confirmation by three fingerprint experts prior to inclusion within the court report.[27]

The material made available to the Crown

37.21. The content of the joint report, book of evidence and statements is standardised, the priority having been considered to be consistency and not full disclosure of all relevant information.[28] The understanding was that information about the detail of the analysis and any peculiarities in any particular case would be picked up at the separate stage of precognition by the procurator fiscal.[29]

The joint report

37.22. The court report continues to be a joint report prepared by examiners specifically under reference to section 280 of the Criminal Procedure (Scotland) Act 1995. The joint report follows a standard style, a copy of which is attached to the Crown Office Circular 8/2009.[30]

37.23. Its format was agreed in 2006 following discussions between COPFS and SPSA.[31] Mrs Tierney had prepared a draft in 2004 that contained some detail concerning the comparison, including a section on any movement in the mark but not disclosure of the level 2 and any level 3 detail relied upon by the examiners.[32] That received mainly negative feedback from examiners. Bureaux heads preferred a shorter report[33] and its terms were discussed with Crown Office during 2006 and the final version agreed.[34]

37.24. The agreed style of joint report is a brief, formal document. It concentrates on marks that have been identified as having been made by the accused.[35] The report records the photographic impression or lift and the fingerprint form against which the comparison was made and contains a table and statement as follows:

24 CO_4109
25 See chapter 33 paras 39-41
26 Mrs Tierney 12 November page 19
27 FI_0152 para 51 Mrs Tierney
28 Mrs Tierney 12 November page 16ff and FI_0114 paras 11-12 Inquiry Witness Statement of Mr Pattison
29 Mrs Tierney 12 November pages 26-27
30 CO_4109 pdf page 4ff
31 Mrs Tierney 12 November pages 19-20
32 MM_ 0145 and Mrs Tierney 12 November pages 6-11
33 Mrs Tierney 12 November pages 14-16
34 FI_0114 paras 7-8 Inquiry Witness Statement of Mr Pattison. The current form of the joint report is contained in the Crown Office Circular 8/2009.
35 Mrs Tierney 12 November page 20

"We have independently carried out a fingerprint analysis, comparison and evaluation of the above items. Each result has been subject to a verification process and we have no doubt our conclusions are as stated.

RESULT OF COMPARISONS (ONLY INCLUDE INFORMATION RELATING TO THE MARKS IDENTIFIED TO THE PERSON(S) THE CASE IS AGAINST)

Production number	Lift/Photograph details	Results
To be left blank	Lift/Photo	Identified as the XXX shown on the finger and palm print form in the name.

(ends)"

37.25. The report contains no detail regarding the characteristics observed by the examiners nor the basis upon which they arrived at their conclusions.

37.26. In order to meet the Crown's disclosure obligation[36] information about other marks in the case is provided in a separate appendix or schedule to which reference is made in a note at the end of the report:[37] "Further items were received in relation to this case. Details of these items and the results of fingerprint examination are separately recorded. The items are retained by Forensic Services, Scottish Police Services Authority." The appendix contains a table listing the results of examinations of items received other than the marks listed in the report as identified to the accused, including lifts, photographs and elimination forms.[38] The appendix is sent to the Crown, but does not form part of the report. It is for the Crown to disclose relevant information from it, the defence being alerted to the existence of other material by the note in the report.

37.27. One examiner prepares the joint report, a second reviews it and both sign it. They discuss its content to establish that they are in agreement as to its terms but in so doing they do not discuss their own thought processes during the examination, or the number of points or the characteristics on which they based their opinions.[39] Where possible they are two of the original examiners.[40]

Book of evidence

37.28. The book of evidence comprises the lifts and/or photographs of the marks and ten-print form referred to in the report.

37.29. Case specific charted enlargements are no longer prepared and hence not produced in court. These were phased out in England and Wales on transfer to the non-numeric system in 2001, leaving only the Glasgow bureau preparing them and on the transfer to the non-numeric system in 2006 even that ceased.

36 FI_0114 para 39 Inquiry Witness Statement of Mr Pattison
37 FI_0114 para 8 Inquiry Witness Statement of Mr Pattison and Mrs Tierney 12 November page 24
38 CO_4109 pdf page 7
39 FI_0152 paras 100-102 Inquiry Witness Statement of Mrs Tierney
40 FI_0152 para 104 Inquiry Witness Statement of Mrs Tierney

Witness statement

37.30. The witness statement is also a standard, formal document. It is not used in practice to provide any substantial disclosure as to the detail on which the opinion of a fingerprint examiner is based.[41] The format was discussed between bureaux and Crown Office in 2005 and the current version[42] has a number of sections giving information such as name, age, date of statement, and dates of unavailability.

37.31. The template for one section[43] is adjusted on a case by case basis to provide information about the examiner's work such as his or her bureau, qualifications and National Register of Fingerprint Experts' number and details of the productions.[44]

37.32. Mrs Tierney said that during discussions about the form of the statement with COPFS there was no suggestion that the statement should be used to make disclosure of information that might have to be disclosed by the Crown to the defence. Mrs Tierney was not familiar with use of a statement for such purposes.[45] A section headed "any other confidential material" is not completed.[46]

Precognition

37.33. Having provided the documents, the examiners may be precognosced by the Crown. Precognition does not take place in summary cases.[47]

37.34. Precognition generally is about assessing and testing the evidence of a witness.[48] Historically for fingerprint examiners the process of being precognosced by the Crown had been formal and consisted of the examiner and the precognoscing officer reading over the joint report. With the transfer to the non-numeric system the process was intended to go into more detail and be more of a two way discussion.[49] The discussions Mrs Tierney had with Crown Office in November 2006 revealed a gap in perceptions. Crown Office's position was that fingerprint examiners should be encouraged to seek discussions if they had something particular about the evidence that they wanted to discuss. The fingerprint examiners' experience had tended to be that there was no discussion of the details of the evidence. The difference of experience and understanding having been identified, it was agreed that Crown Office would participate in CPD sessions for examiners to talk about how precognition should be carried out and the purpose of the precognition process.[50] This had taken place on a regular basis since October 2007[51] and precognition of fingerprint examiners, as noted above, became the subject of internal Crown Office instruction in March 2009.

37.35. The Circular states: "as a qualitative rather than a quantitative approach is now to be adopted in relation to fingerprint evidence, and fingerprint experts are expected to be able to provide a much fuller explanation of the way in which they

41 Mrs Tierney 12 November pages 17-18
42 MM_0134
43 Section 3 of MM_0134
44 Mrs Tierney 12 November page 17
45 Mrs Tierney 12 November pages 17-18
46 Mrs Tierney 12 November page 21
47 Mr Pattison 13 November page 160
48 Mr Pattison 13 November page 187
49 Mrs Tierney 12 November pages 26-27
50 Mrs Tierney 12 November pages 26-29
51 FI_0114 paras 15-24 Inquiry Witness Statement of Mr Pattison

reached their conclusions, all fingerprint experts in High Court cases should be precognosced and there is a presumption that the same applies to sheriff and jury cases (unless it is clear at the time of precognition that the fingerprint evidence in a case is agreed)."[52] The instruction is to precognosce unless the fingerprint evidence is agreed.[53]

37.36. Until shortly before she gave evidence in November 2009 Mrs Tierney was unaware of any change in practice but in the week before she gave evidence one of the examiners in the Edinburgh bureau was precognosced by telephone.[54] Mr McGinnies observed that there had been a marked increase in the number of precognitions across all four bureaux[55] and Mr Pattison explained that fingerprint examiners were not routinely precognosced before the issue of the circular in 2009[56] though the guidance in relation to expert witnesses generally was that there was a presumption in favour of precognoscing them.[57] Mr Pattison's enquiries showed that since that date at least twelve fingerprint examiners had been precognosced.[58]

37.37. The detail of the policy was continuing to evolve at the time of the Inquiry hearings. Crown Office and SPSA were considering a draft aide-memoire for the precognition of fingerprint examiners,[59] which has since been finalised.[60] Mr Pattison said that the precognoscer will have the joint report and statements which can be used as a basis for the precognition. At precognition the fingerprint examiner should be asked how he arrived at his opinion with reference to what he saw in the mark and prints. The fingerprint examiner will be able to tell the Crown about the procedures followed where the full details of the process are not obvious from the statement or joint report.[61]

37.38. Mr Pattison said that the certainty would be tested by asking the examiner the type of questions set out in the draft aide-memoire in relation to, for example, differences of opinion between examiners, any weakness in the examiner's conclusion and possible other explanations.[62] Such 'prompt lists' were being prepared for precognoscers across the range of experts' evidence.[63]

37.39. This has to be set against the fact that examiners currently think in terms of 100% certainty. Mrs Tierney explained that there should be consistent findings from all the examiners who have looked at that mark before it even gets to the Crown due to the verification process. By the time that they are being precognosced the fingerprint examiner will be confident that no other fingerprint examiner will come to a different view, even if there is a difficult area of the mark.[64] That being so, as

52 CO_4109 - Circular 8/2009
53 Mr Pattison 13 November pages 170-172
54 Mrs Tierney 12 November pages 29-30, 174
55 Mr McGinnies 4 November page 91
56 Mr Pattison 13 November pages 171-172
57 Mr Pattison 13 November page 170
58 FI_0195 para 10 Inquiry Witness Statement (Supp.) of Mr Pattison
59 CO_4437, Mr McGinnies 4 November page 90 and Mr Pattison 13 November page 160ff
60 CO_4522 - Crown Office Circular 5/2010
61 FI_0114 para 5 Inquiry Witness Statement of Mr Pattison
62 Mr Pattison 13 November pages 186-187
63 Mr Pattison 13 November page 181
64 Mrs Tierney 12 November pages 42-43

matters currently stand, it is difficult to understand what 'weaknesses' the examiner could be expected to be conscious of and draw to the attention of the Crown.

The extent of disclosure

37.40. Precognitions, unlike police witness statements, are not routinely disclosed to the defence but information disclosed at precognition that falls within the test established in the cases of *McDonald* and *McLeod* will be disclosed,[65] and the defence can precognosce Crown witnesses.

37.41. As Mr Pattison said, there has been a long-standing duty on the part of law enforcement agencies in Scotland to bring to the attention of the prosecutor information which undermines the prosecution's theory of the case and material which pointed towards the innocence of the accused.[66] A failure to fulfil this obligation might result in an injustice.[67] He said that the Crown relies on receiving all relevant information from SPSA to assist the preparation of cases and inform precognoscers when interviewing experts. That was essential to enable the Crown to fulfil its obligations of disclosure to the defence.[68]

37.42. Mr Pattison said that procedures had been put in place to ensure that disclosure obligations are met.[69] These procedures included the ACPOS Disclosure Manual,[70] which deals with forensic examinations.[71] Disclosure at SPSA is governed by procedures and SPSA personnel receive training about disclosure.[72] However, the procedures and training have not led to a situation where full disclosure is taking place in respect of fingerprint evidence.

37.43. Currently the substantive reasons for the examiner's opinion are not disclosed in the joint report or any other material provided to the Crown. There is no way for either the prosecutor or the defence to know what points have been relied on.[73] Images marked up to show the principal points on which the examiner relies are not prepared. The joint report and statement do not disclose whether the mark was complex and demanded examination with particular care. Mr Pattison recognised in his evidence to the Inquiry that an indication of the reasoning should probably be recorded at the joint report stage in such circumstances. Such information might prompt the defence to explore the matter.[74]

37.44. If other examiners within SPSA had disagreed about an identification, SPSA would not normally disclose this[75] nor would SPSA disclose that a facilitated discussion had taken place.[76] If, during a facilitated discussion, agreement was reached, the

65 FI_0114 para 6 Inquiry Witness Statement of Mr Pattison. For *McDonald* and *McLeod* see chapter 30.
66 FI_0114 para 40 Inquiry Witness Statement of Mr Pattison. See chapter 30.
67 FI_0114 para 42 Inquiry Witness Statement of Mr Pattison
68 FI_0114 paras 36-42 Inquiry Witness Statement of Mr Pattison
69 FI_0114 paras 43-45 Inquiry Witness Statement of Mr Pattison
70 Association of Chief Police Officers in Scotland (2009) Disclosure in Criminal Proceedings: Manual of Guidance, URL: http://www.acpos.police.uk/Documents/Policies/CJ_ACPOSDisclosureManualNPMv1.pdf
71 FI_0195 para 17 Inquiry Witness Statement (Supp.) of Mr Pattison
72 FI_0193 paras 142-143 Inquiry Witness Statement of Mr McGinnies
73 Mr McGinnies 4 November page 89
74 Mr Pattison 13 November pages 162-163
75 FI_0193 para 141 Inquiry Witness Statement of Mr McGinnies
76 Mr McGinnies 4 November page 93

result would go out. If agreement was not reached, the default position would be to report that the mark was of too poor quality to come to a conclusion.[77] Mr Pattison said that any dispute or difference of view should be disclosed.[78] In his evidence to the Inquiry Mr McGinnies accepted that the Crown and defence should know about a difference of view, even if it is resolved.[79]

37.45. If there were questions over an examiner's competence, this would not be disclosed for example where an examiner had been found to have made a mistake.[80]

37.46. Both bodies appeared to accept that there was a need for COPFS and SPSA to reach a clear and transparent understanding as to the extent of the requirements of disclosure as a matter of urgency.

Criticism

37.47. At the time of the Inquiry hearings it was clear that SPSA and COPFS did not have sufficiently clear arrangements in place to deal fully with disclosure of fingerprint evidence. This is a cause for criticism of COPFS and SPSA.

Commentary

37.48. The documentation now prepared by SPSA does contain an audit trail of elementary detail but does not yet contain a full record of the reasoning of the examiners. Insofar as it is no longer practice to produce case specific charted enlargements it may even be considered that current practice affords less of an insight into the thinking of the examiners than was the case in 1997.

37.49. Mr Pattison commented that merely to produce contemporaneous notes may not advance matters[81] and that has some force because it may need an expert to interpret the notes and indicate what bearing they may have on the evidence. That said, his statement that "experts are obliged to make the basis for their identifications clear in their reports and statements"[82] is not reflected in the brief, standardised styles of report and statement.

37.50. The Crown's expectation is that 'all relevant information' will be disclosed[83] but that presumes that fingerprint examiners know what might be 'relevant'. In putting forward an identification an examiner is not only personally 100% certain of his own conclusion but also believes that any other examiner would reach the same conclusion[84] and that belief is reinforced by the verification process in which the conclusion is supported by a total of three examiners. An examiner with that training may have difficulty perceiving what background information may be 'relevant' to the Crown or the defence, for that matter, beyond the fact of the bare conclusion recorded in the joint report.

77 Mrs Tierney 12 November pages 31-32
78 Mr Pattison 13 November pages 176-179
79 Mr McGinnies 4 November page 93
80 Mr McGinnies 4 November page 96
81 CO_4428 pdf page 2
82 CO_4428 pdf page 2
83 CO_4428 pdf page 1
84 Discussed in chapter 38

37.51. There is a catch-22 here. Examiners need to be told what is of potential relevance to the Crown and to the defence and they should frame their reports to provide all such information but, in order to do so, those who are requesting information from them need to know what might be material to the conclusion that has been reached. The answer begins with fingerprint examiners recognising that they are expressing an opinion and being more transparent and ultimately more descriptive of their methodology, work practices and the specific factors involved in any particular conclusion. This leads to discussion of the merits of note-taking by examiners.

Note-taking

Practice elsewhere

37.52. SPSA is not alone in not requiring fingerprint examiners to take notes of their thought processes. PSNI do not generally take notes at any stage of the process.[85] Mr Chamberlain and Mr Grigg said that note-taking is uncommon.[86] The Metropolitan Police does not generally produce notes.[87] If there was complexity or some disagreement, the examiner would be asked to take more extensive notes.[88]

37.53. One bureau in the United Kingdom, the FSS, requires notes to be taken. Note-taking is something NPIA teaches as good practice and Mr Grigg emphasised the importance of it.[89]

37.54. The position is different in other jurisdictions. In the United States, note-taking on every case is mandatory in accredited laboratories. Mr Wertheim works in a laboratory that is accredited and part of the accreditation requires notes to be made of every examination, not simply to refresh the memory for court but notes sufficient for another qualified examiner to review them and understand exactly what has been done. It is not mandatory to take notes outside accredited laboratories but Mr Wertheim believed it was common practice.[90] The 2006 OIG report included recommendations that contemporaneous notes be kept[91] and the 2011 review records the implementation of that recommendation by the FBI.[92]

37.55. In the Netherlands examiners must take notes even with simple marks.[93] Mr Zeelenberg told the Inquiry that the Scientific Working Group on Friction Ridge Analysis, Study and Technology (SWGFAST) is moving in that direction.[94]

85 Mr Logan 16 November page 39
86 Mr Chamberlain 18 November pages 56-57 and Mr Grigg 29 September page 18
87 Mr Pugh 24 November pages 82–83
88 Mr Pugh 24 November page 96
89 Mr Grigg 29 September page 17
90 Mr Wertheim 22 September page 58
91 US Department of Justice, Office of the Inspector General (2006) Review of the FBI's Handling of the Brandon Mayfield Case (Unclassified and Redacted) (US Department of Justice) URL: http://www.justice.gov/oig/special/s0601/final.pdf, pdf page 212ff
92 US Department of Justice, Office of the Inspector General (2011) A Review of the FBI's Progress in Responding to the Recommendations in the Office of the Inspector General Report on the Fingerprint Misidentification in the Brandon Mayfield Case, URL: http://www.latent-prints.com/images/FBI%20Mayfield%20Progress%20062011.pdf, pdf page 41ff
93 Mr Zeelenberg 8 September page 30
94 Mr Zeelenberg 8 October page 88

Professor Champod also referred to a SWGFAST draft standard for the documentation of ACE-V.[95]

37.56. The Court of Appeal's concern about the impact of the absence of contemporaneous notes led it to draw the Inquiry's attention to its judgment in *R v Peter Kenneth Smith*.[96]

Arguments in favour of note-taking

37.57. One argument in favour of note-taking is as a counter against bias.[97] It assists by making examiners more conscious of any reverse reasoning that is being applied.[98] Another related argument is that it assists with the reasoning process. Mr Nelson said that it might make an examiner more aware that he or she was making too many value judgments or explaining away differences inappropriately. Mr Chamberlain said that it helps an examiner define exactly what he or she has seen.[99] Mr Pugh was aware of the argument that documentation might be a good check for the individual practitioners in forcing them to see if they can reason through their own particular observations and he saw some merit in that approach as regards more complex cases.[100]

37.58. Mr McGinnies could see some benefit in marking up complex marks at the analysis stage. An examiner would be able to go back and tell what features, if any, had been added during the comparison.[101]

37.59. The absence of notes makes it more difficult to investigate differences of opinion.[102] Professor Champod said that in the case of disputed conclusions there was no way to unfold the chain of evidence without proper documentation of the analysis phase; otherwise everything was based on *post hoc* justification of conclusions that had been already reached.[103] Mr Pugh said also that notes assist in this regard.[104] The OIG noted that the lack of contemporaneous notes impacted on its ability to determine the cause of the Mayfield error.[105] This is also the experience of this Inquiry.

37.60. Mr Pattison said that a benefit of contemporaneous note-taking was that when giving evidence in court an examiner was able to point to what he did at the time. That showed transparency and a consistency of approach.[106] Mr Chamberlain said that a key issue in forensic science is transparency, the ability to show to a court what has been done and how the result was achieved. Contemporaneous note-taking assists in this.[107]

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95 ED_0003 para 25; for an update see SWGFAST Standard for the documentation of analysis, comparison, evaluation, and verification (ACE-V) (Latent) http://www.swgfast.org/documents/documentation/100310_Standard_Doumentation_ACE-V_1.0.pdf
96 [2011] EWCA Crim 1296, paras 61-62
97 Mr Zeelenberg 8 October page 88
98 See chapter 36 para 37
99 Mr Chamberlain 18 November page 18
100 Mr Pugh 24 November page 96
101 Mr McGinnies 4 November page 7
102 Mr Chamberlain 18 November page 25
103 Professor Champod 25 November page 99
104 Mr Pugh 24 November pages 82-83
105 OIG (2006) pdf page 206ff
106 Mr Pattison 17 November pages 46-48
107 Mr Chamberlain 18 November page 18

Arguments against note-taking

37.61. The bulk of SPSA's fingerprint work is carried out at the intelligence stage. A requirement for note-taking at the intelligence stage would have a significant impact on turnaround times and the consequential delay might adversely affect the value of the information to the investigation of crimes.[108]

37.62. A number of witnesses expressed concern about the resources required for note-taking. Mr Nelson said that if SPSA was asked to take notes on every case, it could have a major impact on productivity and efficiency. He said that where there was a lower level of detail or a poorer quality mark more detailed note-taking might be appropriate.[109] Mr McGinnies said that a requirement for note-taking would lead to a requirement for greater resources in the fingerprint service.[110] Note-taking on a daily basis would be very time-consuming. He did not think it was practical.[111]

37.63. When asked whether note-taking was essential in the context of limited public funds and a limited number of disputed identifications Mr Chamberlain stated that it was. It would be practical to make more use of note-taking in fingerprint bureaux.[112] He accepted that note-taking and blind verification would slow down the work of the bureau and might have resource implications.

What is involved in note-taking?

37.64. Along with several other witnesses, Mr Grigg emphasised the need for a proportionate approach to note-taking dependent on the nature of the examination or the context. He said that most examinations are relatively straightforward and very brief notes are all that would be required in order to record the findings. NPIA would recommend that notes be made if the examination is a little more challenging or the examiner may need to explain his or her findings in court. Mr Grigg would expect notes to be made if a comparison were going to be of clear evidential value later in the proceedings. If an examiner were instructed to re-compare a mark for court with a new arrest form Mr Grigg would expect examiners to make notes of the comparison in order to recall more clearly what had been done at that time and explain their findings more clearly to the court if necessary.[113]

37.65. Professor Champod gave similar evidence. He drew attention to the then draft SWGFAST standard for documentation.[114] A pragmatic approach is required. The requirement for documentation should be adapted to the mark, marks of greater complexity need more documentation and clear marks need less.[115] In a simple case, the key element to documentation was having a legible image of the mark. That constituted the primary documentation of the case. Some laboratories have developed pro forma sheets for analysis which invite the examiner to assess various questions such as substrate, identification of 'red flags' and issues with distortion. That sheet can be simple, with check boxes to identify if there are issues. The position is different as regards complex marks: Professor Champod

108 Mrs Tierney 12 November pages 96-97
109 Mr Nelson 13 November pages 31-32
110 FI_0193 paras 137–138 Inquiry Witness Statement of Mr McGinnies
111 Mr McGinnies 4 November page 183
112 Mr Chamberlain 18 November pages 85-86
113 Mr Grigg 29 September pages 18-21
114 See para 55 above
115 Professor Champod 25 November page 55; see also Ashbaugh 'Quantitative-Qualitative Friction Ridge Analysis', 1999, page 112ff

advocated annotation of ridge flow and minutiae with an indication of degrees of reliability.[116] Mr Wertheim also said that in some simple cases, notes may be very short because any other examiner can see instantly what was done. In complex cases Mr Wertheim might take many pages of notes so that another examiner could follow his thought processes exactly.[117]

37.66. Mrs Tierney said that there might be merit in a proposal that: (a) notes would not be taken in every case, as some cases are quite straightforward but (b) notes would be taken for complicated marks.[118] A proposal where note-taking was left to the discretion of an examiner was attractive to Mr Pugh.[119]

Relationship to quality assurance processes

37.67. Mr Pugh said that the imposition on a bureau of a requirement to document the ACE-V process at every stage would be disproportionate.[120] The Metropolitan Police required to prepare evidence for court in only a small minority of cases, the bulk of their work being to inform police intelligence at the early stage of an investigation.[121] The Metropolitan Police could not undertake the current volume of work if it had to document the ACE-V process at every stage for every identification. The priority was to make sure that the Metropolitan Police provided robust and reliable evidence. Notes were supplementary to the decision and the Metropolitan Police needed to make sure that the decision was sound.[122] There was a range of processes to achieve this objective, such as the management system, staff training and development.[123]

Note-taking and ISO accreditation

37.68. There was some discussion as to whether notes were required for ISO 17025.[124] Mrs Tierney said that it had not been definitively established that there was a requirement for a particular level of detail within contemporaneous notes for fingerprint departments to achieve ISO 17025.[125] On the other hand Mr Chamberlain stated that ISO 17025 required that all examinations be recorded through contemporaneous note-taking.[126] Mr Chamberlain is an auditor for ISO 17025 and in his opinion the standard could not be met without contemporaneous notes.[127]

Technology

37.69. It may be that technology can assist in making note-taking less resource intensive. As an example, SPSA is looking at systems that would allow for easier recording of notes for example by speech-to-text, so that while looking at a mark the examiner records his or her thoughts.[128]

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116 Professor Champod 25 November pages 138-140
117 Mr Wertheim 22 September page 55
118 Mrs Tierney 12 November page 95
119 Mr Pugh 24 November pages 141-142
120 Mr Pugh 24 November page 93
121 See chapter 34 para 12
122 Mr Pugh 24 November page 95
123 Mr Pugh 24 November page 94
124 See chapter 40 paras 11 and 14ff
125 FI_0152 para 67 Inquiry Witness Statement of Mrs Tierney
126 FI_0136 para 23 Inquiry Witness Statement of Mr Chamberlain
127 Mr Chamberlain 18 November pages 56-57
128 Mr Nelson 13 November pages 29-30

Commentary

37.70. The arguments in favour of note-taking are compelling at two levels. Firstly, the discipline of taking notes will focus the attention of the examiner on the proper conduct of each stage in the ACE-V protocol and will assist each examiner at the evaluation stage to be conscious of the variables in each comparison which require to be weighed before a decision is taken. In particular, note-taking at the analysis stage will enable an examiner readily to appreciate if any reverse reasoning has occurred at the comparison stage. Secondly, the availability of contemporaneous notes will render the process more transparent. The objections are essentially practical and an unnecessary reduction in the efficiency of fingerprint bureaux is to be avoided. A proportionate approach is appropriate, for reasons of current practicality and resources.

37.71. The evidence to the Inquiry indicates the benefits of note-taking, especially when examining a complex mark. Specific procedures for complex marks, including note-taking, are discussed more generally in chapter 39.

37.72. There would also seem to be no valid practical objection to detailed notes being taken in those cases where fingerprint examiners are carrying out further comparisons at the request of COPFS (perhaps using print forms obtained following arrest) specifically for the purposes of preparing a report for court.[129]

37.73. More generally, proportionality commends the more pragmatic approach that note-taking should be encouraged but not made mandatory. Briefer notes may be all that is required in more straightforward comparisons, and technological advances may make note-taking easier and less disruptive to the efficiency of the process.

Review by defence experts

37.74. The joint report and appendix or schedule relating to marks that have not been identified to the accused, the book of evidence and statements are disclosed to the defence and the defence may take them into account in deciding whether to challenge the evidence. The Crown Office Circular indicates that, since the provision of the schedule to the defence may result in it being lodged as a production, procurators fiscal should ensure that a witness who is able to give an overview of all the fingerprint evidence is precognosced and cited for trial.[130] SPSA examiners may be precognosced by the defence.[131]

Recommendations regarding reports and disclosure

37.75. The disclosure requirements in sections 117-120 of the Criminal Justice and Licensing (Scotland) Act 2010 have been discussed in chapter 30. That Act makes provision for a statutory system of disclosure but neither the primary provisions of the Act nor the subordinate legislation in the Disclosure (Persons engaged in the Investigation and Reporting of Crime or Sudden Deaths) (Scotland) Regulations[132] specify SPSA as an agency to which those provisions apply directly. Accordingly, SPSA continue to be covered by the pre-existing common law rules that the

129 See para 20 above
130 CO_4109
131 See e.g. FI_0193 para 145 Inquiry Witness Statement of Mr McGinnies.
132 Scottish Statutory Instrument 2011 No 146. HMSO, 2011

legislation was intended to modify. This matter requires to be reviewed because SPSA should be regarded as having the same duties as regards provision of information to the Crown as investigating agencies.

37.76. As to the form in which information is provided to COPFS, there is force in Mr Pattison's observation that for SPSA merely to produce contemporaneous notes is not a satisfactory way to discharge the duty to provide necessary information to the Crown.[133] The notes may require interpretation. The availability of notes can provide transparency, as required, but is no substitute for a report that adequately sets out the basis on which the examiner has arrived at the conclusion. Similarly, if the opportunity to take a precognition from the expert is to be worthwhile to the Crown and the defence the precognoscer must be able to discuss the strengths and weaknesses of the examiner's opinion and that cannot occur unless the process of reasoning has been set out in the report itself. For example, if an examiner has been in doubt and has consulted another examiner or if there has been a facilitated discussion those occurrences ought to have been recorded in the notes but may be of such relevance to the weight to be applied to the examiner's conclusion that they merit being highlighted in the report and not left for chance discovery by someone who reads the notes.

37.77. The HMIC September 2000 report highlighted the fact that the then current joint report contained "scant detail" and was designed for efficiency. Observing that the transfer to a non-numeric system would mean that the basis for any conclusion will not always be as straightforward as counting points under the 16-point standard, the report concluded "HMIC believes there is a need for experts to record their reasoning and findings in each case."[134]

37.78. The Change Management Review Team set up by the ACPOS Presidential Review Group made a specific recommendation (October 2000) about disclosure. The recommendation was that all findings should be disclosed to the procurator fiscal[135] and that if a dispute was resolved the matter should also be disclosed to the procurator fiscal.[136]

37.79. Given the terms of these reports it might be thought surprising that the joint report and associated materials that examiners provide in current practice provide even less detail than was provided in 1997 now that charted enlargements are no longer prepared. It might be thought equally surprising that there has been a lack of clear arrangements between Crown Office and SPSA about disclosure.

37.80. Mr McGinnies said that disclosure was under review at SPSA. Changes to the disclosure regime were (as at November 2009) under discussion which might result in new procedures, in which case training would be provided for all fingerprint officers.[137] He had recently attended a one-week course on disclosure and SPSA was putting together a course on disclosure. SPSA would look at each business area and draw up plans for compliance with full disclosure.[138]

133 CO_4428 pdf page 2
134 SG_0375 paras 6.10.2, 8.1.9, 8.1.10 and 8.16.3
135 SG_0522 para 13.7.38 and pdf page 124
136 SG_0522 para 13.12.17
137 FI_0193 para 145 Inquiry Witness Statement of Mr McGinnies
138 Mr McGinnies 4 November pages 157-158

37.81. It appears that it was during the evidence to the Inquiry that COPFS and SPSA came to appreciate the full extent of the material that required to be disclosed and that this needed to be included in the review. It was in the course of the Inquiry that Crown Office appreciated that examiners might need to be asked about differences of opinion.[139]

37.82. Part of the complacency towards fingerprint evidence derives from the premise underlying sections 280 and 281 of the Criminal Procedure (Scotland) Act 1995 that joint reports can be prepared as a matter of routine in anticipation of the evidence being agreed. Without wishing to detract from the benefits of simplified arrangements where evidence *proves to be* routine, for example because on reflection neither the prosecution nor the defence proposes to take issue with the finding, that conclusion should be reached on an informed basis having had the opportunity for reflection on the merits of the evidence. That can only occur if examiners disclose their reasoning; and because their decisions may be based on inconsistent observations or interpretations, there is a need for each examiner to disclose his or her own reasoning in a personal (not a joint) opinion. Provided that individual, personal opinions are made available for the information of prosecution and defence there is no objection to the examiners collectively providing a report of the joint conclusion that can be used in the event that the prosecution and the defence decide to follow the simplified procedures in the statutory provisions or agree the evidence.

37.83. The individual opinions that accompany the joint report require to be detailed and to cover the variables that are material to the formation of the examiner's conclusion. For example, the examiner's opinion should disclose not just the location of any common points but a description of the specific type of feature (e.g. a bifurcation or a ridge ending); and matters such as any indication of movement, multiple touches or any other factor that may support tolerance being applied to any dissimilarity in the appearance of mark and print or any other explanation for any differences. Charted images should be produced to highlight the ridge details (second and third level details) on which the examiner relies, together with a legend that describes the type of ridge detail and the sequence of ridge counts.

37.84. The recommendations contain a fuller list of the matters that should be covered in the joint report and accompanying opinions and those recommendations should be read alongside those for the provision of information by SPSA to the Crown. The two may overlap. Thus, if the examiner has participated in a facilitated discussion or any other form of procedure to resolve a difference of opinion among those who have compared the mark, disclosure may be best achieved by that fact being narrated in the report itself because it may have relevance to the reliability of the conclusion.

Recommendations regarding materials and information made available to defence experts

37.85. The Inquiry has shown that the practical arrangements made for defence examiners may have a bearing on the evidence that they can provide. This relates to image selection, conditions for examination and the provision of background

139 Mr Pattison 13 November pages 176-180

information. These factors require to be considered when productions are being compiled and disclosure is made.

37.86. The images made available to defence examiners and other external examiners was a significant factor in the Inquiry.

1. Mr Swann was initially provided with a photocopy of a charted enlargement of Y7 and formed his opinion relative to that image. He, and in turn Levy & McRae, had asked for access to original materials.[140] Plainly they were right to do so and they ought to have been given access to first generation photographs of the mark taken from the negatives that were available. No examiner should be required to work from photocopies.

2. The image of QD2 that was included in Production 98 and made available to independent examiners, though itself a photographic original, was not the same image studied by the SCRO officers when an identification was first made. The fact that Mr Rokkjaer and Mr Rasmussen first examined a different image may have been a factor in their initial disagreement with SCRO.[141] The actual image or images studied by the examiners who are to give evidence should be included in the productions to ensure that others are comparing like with like.

3. No one image is necessarily the most 'suitable' for all examiners. PSNI did not initially identify QI2 Asbury despite access to a number of the original photographic images studied by SCRO. It was only after obtaining the negative and developing photographs that they considered to be 'suitable' that they were able not only to identify the mark but to agree SCRO's identification of it.[142] The Metropolitan Police examiners can also study a series of photographs in order to select the one with 'optimum clarity'.[143] The same facility should be afforded to examiners instructed by the defence. They should have access to any other existing photographic images of the mark, or for that matter, other ten-print forms, and should be given the opportunity to reproduce images from the negatives.

4. Access to a range of images may also be necessary in a more specialised context. Professor Champod referred to the possibility that more than one image of the same mark may be required to obtain all relevant information if, for example, the mark straddles areas with two different backgrounds.[144] Mr Pugh envisaged a similar scenario.[145] However, it should be emphasised that these witnesses were speaking of the possibility of using a number of first generation images and not a collage of images of different generations, such as were to be found in the presentations of Mr Mackenzie and Mr Swann.

37.87. One of the lessons that Mr Logan derived from his involvement with the Inquiry was the need for examiners to work with original images[146] and I accept that this is one

140 See chapters 10 and 11
141 See chapter 27 para 17ff
142 See chapter 27 para 39ff
143 Mrs Redgewell 24 November pages 128-129
144 Professor Champod 25 November page 53
145 Mr Pugh 24 November pages 127-128
146 See chapter 19 para 48

of the general lessons to be learned. The conditions under which productions are examined are also important. Fingerprint examiners work generally by reference to photographic images of marks and with original fingerprint forms but they do occasionally study the original object. Mr Rokkjaer and Mr Rasmussen were shown the tin, but the lighting necessary to see the marks on it was not available in the procurator fiscal's office where they were viewing it. Other examiners were given access to productions (both objects and images) away from the offices of SCRO: Mr Graham[147] examined the productions in the surroundings of the procurator fiscal's office; and Mr Swann examined them in a very small room in the court building.[148] Mr Graham and Mr Swann considered the conditions to be adequate, but they were less than ideal. PSNI gave evidence that they are accustomed to visits from independent experts in order to view exhibits. Independent experts studying court productions should have the opportunity to study them in examination or laboratory conditions. Fingerprint comparison is a visual skill and should be conducted in optimum conditions.

37.88. The audit trail of other background information may be equally important.

1. The chemical process applied when a latent print is developed or revealed can affect the appearance of the mark.[149] It is apparent that some fingerprint examiners had to make assumptions about the methods used in detecting and recording some of the marks considered by the Inquiry. In the case of QD2 the assumption made may have been erroneous.[150] Examiners should not be required to make assumptions on such matters. Information regarding the techniques applied should be part of the record of the mark available to all examiners.

2. The labelling of QD2 was also not helpful. The image used in Production 98 was of a cluster of different sets of ridge detail and the ridge detail identified by SCRO as QD2 was not unequivocally highlighted in the image.[151] Where part only of a cluster is identified that part should be highlighted in an image.

3. The application of technology allows images to be adjusted, for example, in an attempt to extract more information from a mark initially considered to be insufficient.[152] The range of images that the Inquiry itself commissioned included blurred images of QI2 produced in an attempt to make the ridge detail stand out from the background pattern on the tin.[153] It is essential that an audit trail is kept of any changes made to images[154] because it is as possible to obscure differences as it is to enhance similarities. The availability of a record of the changes made to images will also assist to allay any concern that the manipulation has occurred for an illegitimate reason.[155]

147 Mr Graham 9 July pages 84-90
148 FI_0149 para 11 Inquiry Witness Statement of Mr Swann
149 See chapter 19
150 See chapter 27 para 26
151 See chapter 27
152 Mr Pugh 24 November pages 127-128
153 See chapter 19
154 Mr Pugh 24 November pages 127-128 See chapter 19
155 See chapter 19 and Mr Wertheim 24 September page 37ff

37.89. Appropriate practical arrangements are, of course, not only of concern to external experts. Mr Logan stressed the importance of having a specialised fingerprint photographer. PSNI's fingerprint photographer was recruited as such and trained by its fingerprint trainer. The benefit of a close relationship between the examiners and the photographer is that the photographer is aware of examiners' needs[156] and therefore better able to produce images that meet those needs. With the availability of digital photography there may still be justification for image production and adaptation (through, for example, adjustments of exposure or contrast) to be handled by a trained specialist particularly given the facts that (a) the quality of the original or adapted image can have a material impact on the comparison process and (b) an accurate record should be kept of any adaptations made.[157] This is a matter which SPSA will require to review.

37.90. It is important to bear in mind that photographic images, irrespective of quality, are themselves 'impressions' of the mark on the original object and the Inquiry's experience with QI2 was that knowledge of the underlying substrate may be significant and that may require access to the original object and, for that matter, the mark in its natural state.[158] The need to view the original object has to be considered.

Notification of defence challenge

37.91. If the defence decides to challenge an identification, SPSA would have to consider carefully the substance of the defence challenge. The challenge may result in SPSA examiners being cross-examined in court. As Mrs Tierney explained if a defence expert took a different view it would be very difficult to be examined about it without seeing the other expert's opinion in advance.[159]

37.92. Mrs Tierney also said that she hoped that there would be an opportunity to review such material in advance and to enter into some kind of dialogue about the material.[160] Dialogue takes place in England and Wales between defence and prosecution experts. Mr Pugh said that in England and Wales when there are differences between examiners the judge generally holds a *voir dire* or directs the experts to meet and identify issues agreed and disagreed.[161]

37.93. In Scotland there is no corresponding practice of experts meeting. Procedures are in place to ensure that early notice of a challenge is received and the reforms to High Court procedure[162] should help prevent late notice of a challenge to fingerprint evidence. There is provision for meetings between the Crown and defence lawyers and the High Court of Justiciary Practice Note No 1 of 2005 on Preliminary Hearings[163] requires detailed constructive communication. Mr Pattison said that the process tends to draw out the work which the defence is doing and the material it is awaiting in terms of its preparedness for trial. The defence is required to intimate its

156 Mr Logan 16 November pages 90-93
157 See chapter 19 paras 40 and 41
158 See chapter 19 para 38ff
159 Mrs Tierney 12 November pages 199-200
160 Mrs Tierney 12 November pages 199-200
161 MP_0008 pdf page 30
162 See above
163 Lord Justice General (2005) High Court of Justiciary Practice Notes No 1 of 2005 Preliminary Hearings, URL: http://www.scotcourts.gov.uk/justiciary/practicenotes/pn01_2005.pdf

lists of witnesses and productions to the Crown seven days before the preliminary hearing although there is a degree of judicial latitude and productions are frequently lodged at a later stage and sometimes just before the trial. When that happens it is expected that the advocate depute would explain to the court that the Crown requires time to consider matters and that the judge would allow 'equality of arms' in terms of preparation. If evidence was submitted close to the trial one would expect the advocate depute to ask for time to consider the defence expert report. COPFS would strongly encourage the procurator fiscal to precognosce the defence expert.[164]

37.94. Mr Pattison noted that what is now the Criminal Justice and Licensing (Scotland) Act 2010 would introduce new procedures regarding disclosure of the nature of the defence to the Crown. The thrust was for earlier disclosure to the Crown by the defence of the nature of the defence.[165]

Commentary

37.95. It is essential that expert witnesses are fully prepared to give evidence, and are placed in a position whereby they can discharge their duties to the court.

37.96. If an identification is challenged it is essential that the SPSA fingerprint examiners have sight of the defence examiner's report. Much depends on the form of the report. If the report is in a similar form to the current SPSA joint report it is difficult to see what assistance it would provide. It would not assist in understanding the basis on which the defence examiner contests the identification. Similarly without appropriate material from all experts, defence counsel and the advocate depute would also face significant difficulties in preparing for trial.

37.97. It is not possible to be prescriptive as to the steps that are required in each case, but in the event of a challenge to fingerprint evidence certain requirements appear necessary:

(i) Experts must provide a full explanation of the basis of their opinions in their respective reports.

(ii) Images should be provided by defence and prosecution experts showing the characteristics on which the expert relies or disputes.

(iii) Dialogue between the experts may be necessary in order to clarify points of dispute and experts should be prepared to answer points of clarification raised by other experts in the case.

(iv) The prosecution and defence should as far as is possible identify the true areas of dispute.

The leading of fingerprint evidence in court

Enlargements and visual aids

37.98. Charted enlargements and other images are not generally used in court for fingerprint evidence in the United Kingdom.[166] The lack of visual aids and

164 Mr Pattison 13 November pages 131-136
165 Mr Pattison 17 November page 85
166 Mr Grigg 29 September page 11

enlargements can cause difficulties. Mr McGinnies said that fingerprint examiners have returned from court saying they were asked how they could demonstrate matters to the jury and their response was that they had no means of doing so.[167]

37.99. In England and Wales generic visual aids are used from time to time,[168] and part of the NPIA assessment involves the use of a visual aid to demonstrate how a conclusion was reached.[169] Occasionally examiners are asked to prepare marked-up enlargements.[170] In Scotland there was a decision that enlargements would no longer be routinely used.[171] Mr McGinnies said that two experts had been asked to prepare an electronic presentation in a case but in the event it was not used.[172] In another case examiners were asked to prepare a generic PowerPoint. To Mr McGinnies' knowledge there had been no requests for case specific materials.[173] Mrs Tierney said that the Edinburgh bureau, at the request of COPFS, had prepared a computer-based presentation to assist the court.[174]

37.100. The way in which fingerprint evidence is presented in court is under active review. Mr Pattison said that COPFS was exploring how media and visual representations of the Crown case might be used to make the case come alive to a jury across the range of expert evidence. This was being discussed with SPSA. Consideration was being given to the use of a DVD presentation which would give the court a general overview of what fingerprint evidence is and of the techniques used.[175]

37.101. A *generic* enlargement or presentation may assist the judge or the jury to understand the methodology in general terms but it does have a weakness. If, as seems likely, it is based on a clear mark, a generic presentation may not reveal all of the difficulties associated with a complex mark. If a fingerprint examiner is required to explain his or her conclusion in court the demonstration must include discussion of the approach to the comparison between the specific mark and the specific print that is the subject of the evidence. It is for that reason that I have recommended that charted images be prepared by each examiner as part of the process of preparing their opinions.[176]

37.102. It is plain that the presentation of evidence of this nature is not an easy task and it is rendered all the more difficult if the examiners use inconsistent numbering for the same points. That was the experience of both this Inquiry and the Court of Appeal in *R v Peter Kenneth Smith*.[177] Care should be taken in presenting evidence to reconcile any conflict in the numbering of the relevant details in comparison materials. This Inquiry has had to resort to standardised images (the comparative exercise materials) in order to facilitate analysis of the competing views of the examiners on a like for like basis. That enabled the Inquiry team to produce tables showing the assumed equivalence of numbers attaching to the

167 Mr McGinnies 4 November pages 85-86
168 Mrs Redgewell 24 November page 131
169 Mr McGinnies 4 November page 87
170 Mrs Redgewell 24 November pages 131-132
171 Mr Pattison 17 November page 7 and Mr McGinnies 4 November pages 85-86
172 Mr McGinnies 4 November pages 86-87
173 Mr McGinnies 4 November page 88
174 FI_0152 paras 63-64 Inquiry Witness Statement of Mrs Tierney
175 Mr Pattison 17 November pages 7-9
176 See para 83 above
177 [2011] EWCA Crim 1296, paras 61-62

same features referred to by the various witnesses. Even then, in some instances closer examination revealed that witnesses were actually referring to different ridge details and recognition of that fact went some way to explaining the differences of opinion among them. Clear examples are to be found in the discussion of QI2 Ross particularly relating to (1) SCRO 13 and associated points of difference[178] and (2) the points at the top of the mark.[179] It is difficult to see that issues such as the proper interpretation of ridge detail at the top of QI2 Ross could have been addressed had it not been for the ability to contrast the 'marked up' digital images captured by the specialised computer system available to the Inquiry. Similar care will have to be taken in presenting evidence in any court case: (1) to investigate the extent to which examiners are in agreement regarding the relevant ridge details that require to be considered; (2) to reconcile any conflict in the numbering of the ridge details in common; (3) to ascertain the extent to which the competing opinions are attributable to the selection of either (a) some specific image or (b) some specific ridge detail; and, subject to 3(a), (4) to ensure so far as possible that the competing views can be considered on a like for like basis.

Recommendations

Images

37.103. The training and use of specialist fingerprint photographers should be considered by SPSA.

37.104. Fingerprint photographers should provide an examiner with a selection of images of a mark.

37.105. In relation to digital images:

(i) the digital original should be stored separately;

(ii) any digital image processing should be carried out only on accurate replicas of the digital original;

(iii) any adjustments made to the digital image should be recorded as part of the audit trail.

37.106. Any adjustments made to a photographic print should be recorded as part of the audit trail.

Viewing of original object on which mark is found

37.107. Consideration requires to be given to the need for examiners to examine the object on which the mark was found.

Record-keeping and note-taking

Audit trail

37.108. The method used by scene of crime examiners to detect and record a mark should be recorded as part of the audit trail for that mark.

178 Chapter 26 para 52ff
179 Chapter 26 para 61ff

37.109. The selection of images provided to the examiner, the image chosen for comparison work and the photographic negatives, if any, should all be recorded as part of the audit trail.

37.110. Any image(s) studied by the examiner in making an identification should be provided to the Crown on request together with the remainder of the selection of images.

37.111. A record should be kept for each mark which:

(i) shows whether or not it has been regarded as suitable for comparison;

(ii) lists all prints with which it has been compared.

37.112. Any discussions between examiners (including any consultation with an examiner not directly involved in the comparison of the mark in question) at any stage of ACE-V should be recorded.

37.113. The audit trail for a mark should be available to the Crown if requested.

Note-taking

37.114. Examiners should always take notes when they are examining marks that they consider to be complex.

37.115. Notes should be taken in any case in which a fresh comparison is made in response to a request from the Crown for a report.

37.116. Where notes are required as a result of the preceding recommendations, the notes should be taken at each stage of ACE-V by every examiner involved in the process at that stage and should cover the following matters:

(i) the assessment of the quality of the mark at the analysis stage and any sign of distortion;

(ii) the characteristics identified at analysis including their type and the sequence of them;

(iii) the characteristics taken into account at the comparison stage including their types and sequence in mark and print;

(iv) any revision to the initial analysis made at the comparison stage;

(v) any differences observed at the comparison stage;

(vi) the explanation for any differences;

(vii) any third level detail relied upon in arriving at the conclusion;

(viii) the reasons for the conclusion at the evaluation stage; and

(iv) any consultation with any other examiner during the ACE-V process.

37.117. Subject to any requirement under ISO 17025 and paragraphs 114 and 115, note-taking as to the detail found on analysis and the process of comparison, though not mandatory, should become the general practice for all fingerprint comparison work.

Provision of information to the Crown by the SPSA

37.118. The omission of the SPSA from the statutory scheme of disclosure under sections 117 to 120 inclusive of the Criminal Justice and Licensing (Scotland) Act 2010 should be reviewed. The SPSA should be regarded as having the same duties as regards provision of information to COPFS as investigating agencies under those provisions.

37.119. SPSA and COPFS should agree and implement, as a matter of urgency, a process for the provision of information by SPSA to COPFS. COPFS should provide SPSA with information and advice as to the Crown's duty of disclosure with a view to informing SPSA's understanding of the nature and extent of the information that SPSA will require to provide to COPFS.

37.120. The following information should always be provided to the Crown:

(i) a list of names of all examiners who have examined the mark at SPSA and their opinions as to the mark and the comparison;

(ii) whether the complex marks process has been invoked;

(iii) any discussions between examiners relating to the formulation of conclusions about a mark;

(iv) any differences of opinion between examiners;

(v) whether the mark has been subject to facilitated discussion or panel review.

Reports under sections 280 and 281 of the Criminal Procedure (Scotland) Act 1995

37.121. Each examiner should provide a separate written opinion and prepare his or her own material before any attempt is made to produce a joint report.

37.122. The joint report prepared should be supported by the production of the individual opinions. It should be a matter for the Crown and defence to determine whether the joint report would suffice in a given case, or whether examiners should be called to give oral evidence.

37.123. Each examiner's separate opinion should cover:

(i) the images of the mark and also the specific print used in the comparison;

(ii) the examiner's opinion about the quality of the mark;

(iii) if the examiner considers the mark to be complex;

(iv) whether third level detail is relied upon and the fact that such detail still requires to be supported by further research that has been validated;

(v) identifying any differences between mark and print;

(vi) a summary of the reasons why any differences between mark and print have been discounted and whether the examiner relies on objective studies and evidence to account for such differences or on common sense and experience;

(vii) the characteristics relied on in making the identification, the number of such characteristics, and the classification of such characteristics, (e.g. ridge ending, bifurcation);

(viii) a marked up image of the mark and print with a legend specifying the type of the ridge detail (including any third level detail) relied upon and the associated ridge counts;

(ix) the opinion of the examiner;

(x) any consultation with another examiner during the ACE-V process, including any facilitated discussion or panel review; and

(xi) the fact that any novel method such as probabilistic analysis has been used or relied on.

Consideration of material by defence experts

37.124. Fingerprint examiners engaged by the defence should be afforded access to the same material as that used by SPSA, in appropriate examination or laboratory conditions.

37.125. Fingerprint examiners engaged by the defence should be afforded access to any other images of the mark or fingerprint forms as are available to SPSA and COPFS. If negatives are available, arrangements should be made on request to provide the defence examiner with any print reasonably required. If the image is in digital format the defence examiner should be given sight of the digital original and should be provided with a copy of the same.

37.126. As a matter of good practice, defence examiners should examine the unmarked mark and print and reach their own conclusions on that material before examining any marked images produced by the SPSA.

37.127. In the event of a challenge to an identification the defence should disclose the full reasons why it believes that the SPSA examiners' opinions are incorrect. This may require the disclosure of marked up images of mark and print with a legend specifying the type of characteristic and associated ridge counts. Such disclosure should take place at a reasonable time before the trial in question. It should take place where appropriate in the context of the provision of defence statements in accordance with section 124 of the Criminal Justice and Licensing (Scotland) Act 2010.

Presentation of fingerprint evidence in court

37.128. COPFS should pay particular attention to ensuring that fingerprint evidence is presented to the court in such manner as to be readily understood by the judge and jury.

37.129. The use of technology to assist fingerprint examiners in demonstrating to the court aspects of their evidence should be explored.

CHAPTER 38

THE EXPRESSION OF OPINION BY EXAMINERS AND IMPLICATIONS FOR THE PRESENTATION OF EVIDENCE IN COURT

Introduction

38.1. The terms in which any expert witness expresses his opinion are bound to have an impact on the court, as the National Academy of Sciences has said: "Many terms are used by forensic scientists in scientific reports and in court testimony that describe findings, conclusions, and degrees of association between evidentiary material (e.g. hairs, fingerprint, fibres) and particular people or objects. Such terms include, but are not limited to 'match', 'consistent with', 'identical', 'similar in all respects tested', and 'cannot be excluded as the source of'. The use of such terms can and does have a profound effect on how the trier of fact in a criminal or civil matter perceives and evaluates scientific evidence."[1]

38.2. The National Academy of Sciences has also highlighted that "subjectivity is intrinsic to friction ridge analysis"[2] and the findings of the Inquiry have shown that a complex range of variables interact in the formation of the opinion of a fingerprint examiner.[3] These inescapable propositions have significant implications for the terms in which the opinion of a fingerprint examiner can be properly presented to the court.

The expression of opinion

Context

38.3. The context in which expert evidence can legitimately be led in court is relevant to the terms in which it is expressed.

38.4. The circumstances in which it is legitimate to lead expert evidence in a Scottish court have been discussed in chapter 30. It must relate to some matter that is beyond the ordinary knowledge and experience of a judge or juror. A recent case illustrating the point is *Gage v HMA*[4] in 2011. Mr Gage was convicted of murder in a shooting that occurred at about 22:00 on a night in March. The evidence against him included eyewitness evidence. The widow of the deceased identified him for the first time in court as resembling the gunman, the resemblance being in his "scary eyes". She also identified clothing that the gunman was wearing. The clothing had been found in a Saab car that a second witness said was similar to the getaway car and Mr Gage's DNA was found on that clothing. On appeal the defence sought to lead evidence from a professor of psychology who had expertise in the reliability of eyewitness evidence but the court held that it was not appropriate to lead evidence from an expert when the issue was the credibility and reliability of eyewitness evidence. The potential for eyewitness evidence to

1 Committee on Identifying the Needs of the Forensic Sciences Community, Committee on Science, Technology and Law Policy and Global Affairs, Committee on Applied and Theoretical Statistics Division on Engineering and Physical Sciences, National Research Council. Strengthening Forensic Science in the United States: A Path Forward, Washington, D.C.: National Academies Press, 2009, page 21
2 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, page 139
3 See chapter 35
4 2011 SCL 645 and [2011] HCJAC 40 URL: http://www.scotcourts.gov.uk/opinions/2011HCJAC40.html

be unreliable is notorious but ordinary experience enables judges and jurors to assess the reliability of such evidence by considering factors such as the limited opportunity that the witness had to observe the person or the object in question, the time of day and the quality of the light. It was not necessary to supplement ordinary experience with expert evidence to enable the jury to assess the reliability of eyewitness evidence and therefore it was not legitimate to lead expert evidence on this issue.

38.5. Eyewitnesses will regularly be asked to express an opinion on the chances of error in their identification but, again, readily familiar factors (such as familiarity with the accused, the brevity of the opportunity to observe him and the prevailing lighting) will enable the judge or jurors to form an independent assessment of the reliability of the evidence irrespective of the witness's self-declared level of certainty. In *Jenkins v HMA* an eyewitness identification that the witness said was "100% sure" was rejected as unreliable for the common sense reason that the witness had on various occasions identified three different people as the assailant: "One might suggest that a person who is 100% sure that three different persons were witnessed by him doing something for which only one person was responsible is one upon whom little or no trust or confidence can be placed."[5]

38.6. The complexities associated with fingerprint pattern recognition are beyond ordinary experience and therefore it is legitimate to lead evidence from a fingerprint expert. By the same token, the very fact that such evidence is beyond ordinary experience restricts the ability of the judge or the jury independently to assess the reliability of such evidence. Without a careful exposition of the relevant factors by the expert neither judge nor jury may be able to assess the reliability of fingerprint evidence, and in particular to check whether the witness is justified in any claimed level of certainty. Even then, there is always the innate tendency to defer to expertise, so the expert has to be accurate in the terms in which evidence is given and, in particular, accurate in any claim to any degree of certainty attaching to the conclusion.

100% certainty

38.7. Fingerprint examiners give evidence that marks can be 'matched' to the level of 'individualisation', by which they mean that the mark can be attributed to one single person in the whole world throughout human history. That is a conclusion that they profess to express to the standard of '100% certainty'.

38.8. The term '100% certainty' is open to interpretation. It could mean:

(i) fingerprint evidence is 100% reliable or infallible;

(ii) the examiner is himself 100% sure that his conclusion is correct;

(iii) the examiner is 100% sure that another examiner would agree with his opinion, whether or not that includes seeing the same similarities.[6]

5 [2011] HCJAC 86, para [48] URL: http://www.scotcourts.gov.uk/opinions/2011HCJAC86.html

6 Mr McGinnies 4 November pages 46-47 and FI_0152 paras 86-94 Inquiry Witness Statement of Mrs Tierney

38.9. There have been claims to infallibility and even in the trial in *HMA v McKie* Ms McBride advanced a variant that it was not possible for a combination of five examiners to make a mistake.[7] The claim to infallibility is wrong because fingerprint evidence is opinion evidence and there have been instances of erroneous identifications. Even where multiple examiners have been involved in verification an error can be made. The first interpretation of '100% certainty' is not one that can be justified.

38.10. Fingerprint examiners working for SPSA continue to express themselves in terms of 100% certainty and, as understood by them, that denotes a combination of the second and third interpretations. That is what they continue to be taught in training.[8]

38.11. There is evidence of significant variation of opinion among examiners and, therefore, one examiner cannot possibly know for certain what all other examiners might say. Consequently, the third proposition is one that cannot necessarily be substantiated.

38.12. As for the second, the requirements for scientific validation of any forensic science methodology have to be borne in mind:

> "The determination of uniqueness requires measurements of object attributes, data collected on the population frequency of variation in these attributes, testing of attribute independence, and calculations of the probability that different objects share a common set of observable attributes. Importantly, the results of research must be made public so that they can be reviewed, checked by others, criticized, and then revised, and this has not been done for some of the forensic science disciplines."[9]

38.13. The ability of any examiner to 'individualise' without the potential for any error at the claimed level of one person in the whole of human history is not scientifically validated. Fingerprint examiners do not presently base their conclusions on validated statistics of the incidence of variation in friction ridge details in the population. Their opinions on 'sufficiency' are derived from personal assessments founded in training and personal experience.[10] The second proposition is, accordingly, one that cannot be substantiated.

38.14. In short, no one of the three interpretations is justifiable and, hence, the claim to '100% certainty' is not one that should be advanced. That is consistent with the evidence of Mr Nelson, Mr Chamberlain and Professor Champod.

38.15. Mr Nelson explained that in forensic science the only evidence about which there can be 100% certainty is physical fit evidence, for example where one can physically fit two pieces of wood together. Other evidence is opinion evidence. One may be confident in the result but never 100% certain.[11]

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7 See chapter 12 para 37
8 Mr McGinnies 4 November page 46ff
9 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, page 44
10 See chapter 33 para 43 ff
11 Mr Nelson 13 November pages 8-9

38.16. Mr Chamberlain explained that individualisation is not achievable on a scientific basis. Examiners give a personal opinion that a mark can only have come from one particular individual. What the examiner is doing is dismissing the likelihood that the source of the mark could be another person because the likelihood is so diminishingly small but that conclusion is a matter of personal opinion and not something founded on scientific principle.[12]

38.17. Professor Champod said that when an examiner claims certainty he is making what has been described as a 'leap of faith'. At some point, the examiner has identified so many corresponding features that he becomes subjectively convinced that the chance of duplication is zero. He went on: "This little jump from a probabilistic position to certainty escapes the science. It has been accepted by courts for years but it escapes a logical argumentation."[13]

Commentary

38.18. It is important that the limitations inherent in the subjective nature of fingerprint evidence are clearly understood and that it is appreciated that it is not infallible. It can also no longer be claimed to be a matter of 'practical infallibility' because, as understood by Lord Justice General Clyde in *HMA v Hamilton,*[14] even that claim was predicated on long experience showing that the presumption in the truth of this type of evidence has never been successfully rebutted. The claim to '100% certainty' cannot be substantiated and should not be made.

38.19. Fingerprint trainees should not be taught '100% certainty'. Their training should proceed on the premise that fingerprint evidence is opinion evidence. As discussed in chapter 35, recognition that this is 'opinion' evidence is not an end in itself. It opens up a series of consequential questions disclosing the complex nature of the series of subjective judgments that are involved in the process and the variability of the materials with which they are required to work. Trainees and qualified examiners alike require to be conscious at all times of the variables that are involved and the potential for differences of opinion and, indeed, error.

Standard applied in arriving at conclusion

38.20. Removing the claim to '100% certainty' should not be understood to imply that the fingerprint examiners should lower the standard to which they work. They should not. The distinction can be seen in the 2011 OIG review:

> "Historically, latent fingerprint examiners expressed identification conclusions in terms of '100% certainty', with a zero likelihood that the latent fingerprint was made by a different person. Although the FBI Laboratory has not lowered the standard required to make an identification, examiners no longer testify that they are '100% certain'. Instead, examiners testify that they are confident in the conclusion, would not expect to see the same amount of information repeated if the fingerprints originated from different people, and

12 See Mr Chamberlain 18 November page 44 and Professor Champod 25 November page 81

13 Professor Champod 25 November page 83, Stoney, D.A. What made us ever think we could individualize using statistics? Journal of the Forensic Science Society, 1991, 31(2): 197-199

14 1934 JC 1 at page 4

find no physical evidence causing them to doubt that the fingerprints are from the same source."[15]

'No doubt'

38.21. The style of joint report that has been in use since 2006 expresses the conclusion in these terms: "Each result has been subject to a verification process and we have no doubt our conclusions are as stated."[16] That is a conclusion expressed by examiners who have been taught to expect that they can have 100% certainty in their conclusion and when expressing 'no doubt' that is the standard that they imply; they mean *absolutely* no doubt. Accordingly, as currently used by an examiner with that training it is truly a synonym for '100% certainty'.

38.22. The formulation used in the SPSA style report and the terms in which FBI witnesses testify both use variants of the expression 'no doubt'. It is not my intent that this Inquiry be prescriptive as to the language that a witness may use. The point that is being made is of more substantive significance. The objection to '100% certainty' and any synonymous expression is an objection to the *claim* to scientific accuracy, which cannot be substantiated.

38.23. The legal background has been surveyed in chapter 30. '100% certainty' is not a precondition for the admissibility of expert evidence. Proof to the criminal standard does not require mathematical certainty.[17] In testifying on the basis of '100% certainty' fingerprint examiners are, at one and the same time, addressing a standard not set by law and overstating their evidence in order to meet it. An expert witness can give evidence where there is room for doubt about the conclusion and, indeed, if there is room for doubt the expert is obliged to disclose that fact. An expert witness may express an evaluative opinion, that is to say the witness may explain the strength of the opinion and may do so even where (as in the case of fingerprint evidence) there is no statistical basis for the evaluation. But the facts that there is no supporting statistical database and that the assessment is subjective and based on experience must be clearly disclosed enabling the evidence to be assessed accordingly. As the Court of Appeal put it in *R v Reed and Reed*, "care must be taken to guard against the dangers of that evaluation being tainted with the verisimilitude of scientific certainty."[18]

38.24. A fingerprint witness has to start from the premise that fingerprint evidence is opinion evidence. If the strength of the personal opinion is not stated in the report the witness may be asked about it in court and will answer as that witness sees fit. What matters more than the choice of language (whether the witness says that he is 'confident', 'sure', 'certain' or 'in no doubt') is the transparency of the opinion.

15 US Department of Justice, Office of the Inspector General (2011) A Review of the FBI's Progress in Responding to the Recommendations in the Office of the Inspector General Report on the Fingerprint Misidentification in the Brandon Mayfield Case, URL: http://www.justice.gov/oig/special/s1105.pdf, pdf page 10

16 See chapter 37 para 24

17 See, for example, the New Zealand Court of Appeal in *R v Buisson* [1990] 2 NZLR 542 at pages 546-549

18 *R v Reed and Reed*, *R v Garmson* [2009] EWCA Crim 2698, [2010] Cr App R 23 at para 121

Evidence on a scale

38.25. The question arises whether fingerprint examiners could adopt the practice of certain forensic scientists, such as the expert in facial comparison in *R v Atkins and Atkins* and the footwear mark expert in *R v T*,[19] and express the strength of their conclusion by using a sliding scale ranging from, for example, 'consistent with' to 'lends powerful support' to the particular proposition.

38.26. There are two practical objections to the adoption of a sliding scale in relation to fingerprint evidence in current practice.

38.27. The first is that fingerprint examiners do not currently reason in terms of any gradation in the probability of their conclusions. The two positive findings that they can make are either (1) an identification or (2) an exclusion and in each case the decision is categoric. Where the examination results in anything less than a categoric decision the finding is 'inconclusive'.[20] To adopt any language suggestive of a gradation in the probability of a match or exclusion would be misleading.

38.28. Secondly, as it currently stands, there is no statistical base that would provide a reliable basis on which a fingerprint examiner could assign a quantifiable value to his conclusion on a scale of probability.[21] Statistical models are under development and are discussed in chapter 41. Until such time as a statistical model is validated there is no basis upon which the chance of a match between mark and print can be expressed (or assessed) on a scale of probability, whether in percentage terms or by use of some conventional or descriptive language. There is no alternative but to present fingerprint evidence as being based on subjective opinion informed by training and personal experience.[22]

Training for court

38.29. Subjectivity is manifest throughout the comparison process, no more so than at the final inferential step when the examiner is considering whether there is 'sufficient' matching detail for a conclusion of identity. Examiners operate to a personal threshold.[23] This can, therefore, be anticipated to be a fertile area for cross-examination and this has arisen in training at SPSA and the NPIA. In his evidence Mr McGinnies approached it from two different perspectives.

38.30. The first is what is understood by 'sufficiency' and that was explained as a quantitative and a qualitative analysis:

> "You are looking at the whole mark. So it would be when you are satisfied... [you] have enough, sufficient information of quality and quantity within the two to effect an identification. Depending on the mark, it may take longer or may take more to convince them but it could be very early in the comparison or, depending on the complexity of the mark, it may take longer to work to get right across the mark and make sure that everything is in sequence and

19 See chapter 30 para 29ff
20 Professor Champod 25 November page 77
21 Mr Pugh 24 November pages 13, 20-21
22 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology. Boca Raton, Florida: CRC Press, 1999, pages 146-148
23 See chapter 33 para 43ff

agreement. So, depending on the clarity of the mark and the tolerance level, will depend on how soon they came to their conclusions.

... When are you satisfied? What is satisfied?

The answer to those would be by looking at each mark on its own merit, by studying all the details, all the features that are present, by taking into account all your information, all your analysis, and it is when you are satisfied to that conclusion of identification that anyone else coming behind you with the same training, qualifications and experience will come to the same conclusion you have effected an identification. So it sounds [inaudible] to say it depends on the mark but that is what they are trained when they are satisfied."[24]

38.31. The second perspective was approaching it as a question aimed at ascertaining the minimum number of points required for an identification:

"It is something that they are taught at NPIA as well very early on is to – it is something that in court and in mock courts especially we try to hypothetically take people down the line of 'could you identify on'. So they have got to be aware that the answer has to be 'depends on the mark' and they can only talk about the mark that they have identified in this case. They should not really be drawn into going down a way, a line. They have got to talk about what they are there in court for that day to.

Q. Just following that theme, if a defence agent does ask, 'Well, would you identify on four points?' is there any reason why he is not entitled to a straight answer?

A. No, certainly not but the answer would be I would need to see the four points. Hypothetically could I identify four points? Yes, if they were clear, if there were other features in sequence and agreement, yes, but it would need to be qualified by, 'Yes but I would need to see the mark'. You would need to see the four points. But there would never be an evasion. There would be no evasive answer of, 'No, I could not answer that'. They would give their opinion obviously."[25]

38.32. The answer that 'sufficiency' depends on the mark is circular and unilluminating. The same circularity is evident in textbooks.[26] The natural consequence of the abandonment of the numerical standard is that 'sufficiency' cannot be defined in terms of a prescriptive number of characteristics (level 2 or level 3) and will depend on the clarity of the mark and the individual examiner's perception of the rarity of the observed pattern. In the absence of validated statistics for the incidence of level 2 detail and proof of the reproducibility of level 3 detail, examiners can truly only speak in terms of their personal perception of rarity.[27] The judgment is an empirical one that may defy precise definition.

24 Mr McGinnies 4 November pages 77-78
25 Mr McGinnies 4 November pages 78-79
26 See chapter 33 para 44ff
27 See chapter 35 paras 99-100; and chapter 33 para 44ff

38.33. The inability to give a definitive explanation of 'sufficiency' does not render fingerprint evidence inadmissible. The legal analysis in paragraph 23 is relevant: the evidence remains admissible but fingerprint examiners must be more transparent and, to that end, more descriptive of not only the methodology that they apply in general (emphasising its subjective base) but also the particular judgments that they have made when identifying the mark which is the subject of their evidence and the lack of a statistical base for the conclusion of 'sufficiency'.

38.34. The 'sufficiency' of the observed common characteristics to establish unique identity is mentioned only as one example. Consideration of the five questions in chapter 35 shows that a fingerprint examiner's conclusion is not based on a single subjective judgment but a series of judgments each of which may be a matter of personal opinion. It is recognition of the empirical nature of the series of judgments that necessitates (1) conspicuous care when each examiner is conducting a comparison; (2) appropriate verification and (3) clear exposition when evidence is being given in court.

38.35. Each examiner, when carrying out the 'ACE' components of ACE-V, has to be alert to the subjective variables that may affect their conclusion, including the quality of the mark, the scope for variability in the interpretation of incomplete detail, the degree of tolerance being applied and the robustness or cogency of the explanation for any differences and must carry out a critical evaluation of the reliability of the conclusion having regard to these variables and mindful of the potential for error.

38.36. The empirical nature of the series of judgments also provides the rationale for a requirement for independent verification as an appropriate check against unjustified subjective judgments by a single individual.

38.37. Finally, these same considerations support the need for a more transparent and expansive narrative in reports prepared for court, with each examiner explaining the judgments that he has made in arriving at his conclusion.

38.38. Mention has been made in chapter 35[28] of the potential for different interpretations of the ridge detail that SCRO identified as SCRO 4-6 in Y7 and SCRO 1, 10, 16, 11 and 12 in QI2 Ross. Where ridge detail in a mark (or for that matter in the print: for example, SCRO 4 in Ms McKie's print) lacks clarity and is open to a number of interpretations, the examiner should disclose in the report that the ridge detail is open to interpretation, should explain the reasons for the preferred interpretation and draw attention to the implications if any of the alternative interpretations.

38.39. Opinions should be expressed in a way that accurately reflects the limitations of fingerprint methodology and not in terms that could be misleading. There is a danger in examiners being taught stereotyped answers to cross-examination, such as responding to questions about the general approach to 'sufficiency' by saying that they can only talk about the mark that they have identified in the particular case. Such answers appear defensive, designed to avoid discussion of the limitations of the underlying methodology, in particular the fact that a personal threshold has been applied by the witness. These are facts which may be material to the reliability of the conclusion.

28 Para 34ff

38.40. The legal profession (including the judiciary) has contributed to the complacency concerning fingerprint evidence in court. This is part of the wider issue of deference to expert witnesses. As Ashbaugh has commented, in the past challenges to fingerprint evidence may have been "haphazard at best, usually ill-prepared".[29] I have recommended that those involved in the criminal justice system should recognise fingerprint evidence as opinion evidence that needs to be assessed on its merits.[30] Where the mark is very clear there may be little scope for difference of opinion and fingerprint examiners may not face questioning but where the mark lacks clarity[31] they should expect in the future that they may be cross-examined by lawyers with more insight into the methodology of fingerprint comparison work as a result of this Report and fingerprint examiners need to be prepared to answer more searching questions.

38.41. Fingerprint examiners need to be aware of their responsibilities to the court as an expert witness. COPFS has, since the Inquiry hearings, produced a guidance booklet for SPSA expert witnesses, covering the role of the expert witness and disclosure.[32] The expert's duties to the court have been discussed in general terms in chapter 30 but at a practical level the problem lies in the application of those general principles to the subject in hand: how should fingerprint examiners approach the presentation of their evidence in a written report and evidence in court?

38.42. The short response that a fingerprint examiner should disclose the limits to the discipline of fingerprint comparison, and hence the limits of the opinion being expressed, leads to the challenging statement by Judge Edwards:

> "My concern is that some forensic practitioners may not know what they do not know about the limits of their discipline; they will have to be taught this so they can be circumspect in their testimony."[33]

38.43. Professor Champod has made the point that it is unfair to criticise fingerprint examiners for the lack of transparency in the explanations that they have provided hitherto. Fingerprint comparison is "a field that practitioners learned as straightforward and unquestionable because of its inherent quality."[34] Moving away from a premise of '100% certainty' is more than a stylistic change. The move is intended to reflect the facts that fingerprint comparison is not straightforward and the conclusions not necessarily unquestionable. Exposing those facts represents a fundamental shift in the basis on which fingerprint evidence is presented. Further research is required to ascertain the limits of the discipline or technique but meantime practitioners require to adjust to working "under conditions of

29 Ashbaugh D., Quantitative-Qualitative Friction Ridge Analysis, 1999, page 4
30 See chapter 35 para 132
31 See, more generally, chapter 39
32 CO_4524
33 Judge Edwards, "Solving the Problems That Plague the Forensic Science Community", keynote address at the conference on Forensic Science for the 21st Century: The National Academy of Sciences Report and Beyond, Arizona State University, 3 April 2009 URL: http://lst.law.asu.edu/FS09/pdfs/H.T.%20Edwards,%20Solving%20the%20Problems%20That%20Plague%20Forensic%20Science.pdf page 9
34 Champod C. Fingerprint examination: towards more transparency. Law, Probability & Risk, 2008, 7:111-118 at page 113

uncertainty".[35] The teaching that Judge Edwards mentions as needed is most likely to come from academics working in the field.

38.44. An emphasis needs to be placed on the importance of not only learning the methodology of fingerprint work, but also of engaging with members of the academic community working in the field. That need begins at the point of training[36] but is of continuing relevance throughout professional development.

38.45. As has been said on a number of occasions in this Report, there is no reason to believe that fingerprint evidence lacks reliability. Nonetheless, unjustified claims should not be made for the discipline and transparency is required.

Consequential implications of fingerprint evidence being recognised to be opinion evidence

38.46. Recognition of the fact that fingerprint evidence is opinion evidence has a number of practical implications. The first concerns the range of individuals who may be considered to be suitably qualified to testify as an 'expert' witness in relation to fingerprints. That is addressed in chapter 40. Other practical consequences are considered here.

Open discussion of rival opinions

38.47. One of the side-effects of the belief in 100% certainty (particularly when expressed as a belief that any other competent examiner would agree) is that it leaves no room for an alternative view:

> "In the past the friction ridge identification science has been akin to a divine following. Challenges were considered heresy and challengers frequently were accused of chipping at the foundation of the science unnecessarily. The cultish demeanour was fostered by a general deficiency of scientific knowledge, understanding, and self-confidence within the ranks of identification specialists. A pervading fear developed in which any negative aspect voiced that did not support the concept of an exact and infallible science could lead to its destruction and the destruction of the credibility of those supporting it."[37]

38.48. Tenable differences of opinion come to be seen in terms of a 'dispute' and examiners can believe that those who take a different view are in 'the opposite camp' and can only be wrong, incompetent or even dishonest. Y7 came to be a regrettably extreme example of this tendency. This can lead to unjustified personalised attacks being made in various media that can discredit the discipline itself.

38.49. Belief in '100% certainty' should no longer be taught not only because it overstates the degree of certainty that can be attached to the evidence in the eyes of the court but also because it is inimical to open discussion between practitioners. Fingerprint examiners address and assess numerous matters with a subjective

35 NAS Strengthening Forensic Science in the United States: A Path Forward, 2009, page 217; and see chapter 35 para 127ff

36 See chapter 35 para 129

37 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 4

dimension in forming their opinions about comparisons, including image selection, the observation and interpretation of characteristics in the mark, the treatment of differences between the mark and print and the sufficiency of information for an identification. It is possible for competent examiners to formulate differing opinions about the same mark and print[38] and the fingerprint community requires to be receptive to differences of opinion.

38.50. The relevance of this within a bureau, where there requires to be an open environment in which practitioners are encouraged to air doubts and to challenge the views of others as necessary during the ACE-V process, is discussed in chapter 36. However, the point is broader. The fingerprint community generally has to be more transparent and challenging and to move away from what Ashbaugh termed the 'cultish demeanour'. Practitioners have a significant contribution to make to the adjustments required to present fingerprint evidence realistically in a world no longer simplified by '100% certainty' and in order to do that they must begin by recognising that opinions can differ and progress from that to investigate the sources of variability and hence identify the factors that should be taken into account by a fingerprint examiner in reaching a conclusion on a comparison and by the court (judge or jury) when assessing the evidence. There requires to be a healthy debate across the profession free from any imputation that the expression of differences of opinion gives rise to issues relating to personal professional competence or undermines the reliability of the discipline.

Erroneous identifications

38.51. The September 2000 HMICS report recommended that a national policy be established to deal with all 'erroneous' fingerprint identifications.[39]

38.52. I endorse that recommendation subject to two observations.

38.53. The first is that care has to be taken in relation to the definition of 'erroneous'. The mere fact that a difference of opinion occurs does not imply that any 'error' has been made. A clear distinction has to be drawn between cases where there is scope for a difference of opinion and cases where there may have been a mistaken fingerprint analysis or a breach of accepted procedures. Excessive investigation of differences of opinion among examiners could prejudice the objective of promoting an open culture where practitioners are encouraged to air doubts and differences and is to be avoided. There is no need for investigation where opposing views are tenable and an examiner who identifies when others are not persuaded of the match should not be branded as having made an 'erroneous' identification merely by virtue of the fact that others disagreed. The need is to investigate cases where a wrong finding of identification (or for that matter exclusion) displays a mistake in the application of accepted procedure or proper fingerprint analysis or evaluation.

38.54. The second observation relates to the objectives of such an investigation. The article by Simon A. Cole, 'More than zero: accounting for error in latent fingerprint identification',[40] shows that little is known worldwide about instances of error in fingerprint comparison work. One of the examples mentioned by Cole was the case of Lee and the Inquiry has found that prior to SCRO handling Y7, Nottinghamshire

38 Mr Chamberlain 18 November page 87
39 SG_0375 para 5.20.4 and recommendation 13
40 Cole S.A. The Journal of Criminal Law & Criminology, 2005, 95: 985

Police had made a misidentification that was investigated by the Metropolitan Police. While the report, written in 1992, does not say what the cause of the error was, it did comment adversely on the practice of verifiers being presented with charted comparisons on a comparator machine or photographic enlargement and recommended that verifiers reach conclusions independently of the findings of any other examiners.[41] Inappropriate use of the comparator machine was a weakness in the working practices at SCRO five years later that may have contributed to the error in relation to Y7.[42] Other factors implicated in the erroneous identification of Y7 and QI2 Ross (failing to pay due attention to the quality of points in similarity, failing to give a satisfactory explanation for differences and reverse reasoning) were to recur later in the FBI's misidentification in the Brandon Mayfield case. Errors made in the handling of ordinary casework can provide valuable lessons not only for the fingerprint examiners directly involved in the immediate case but also for the fingerprint community as a whole. Erroneous identifications (or exclusions) need to be investigated to ensure that any lessons to be learned are identified and, as appropriate, drawn to the attention of the wider fingerprint community. SPSA will require to consider whether procedures require to be revised in the light of the findings of an investigation within any of its own bureaux and, for that matter, in the light of any report from any other country such as the OIG Mayfield reports.[43]

The range of conclusions and 'unable to exclude'

38.55. By convention[44] fingerprint examiners are understood to restrict their findings to categoric statements of identity or exclusion, with anything less being said to be inconclusive.[45] The conclusions were constrained by resolutions of the IAI from 1979 and 1980[46] but those resolutions were rescinded by IAI Resolution 2010-18 of 16 July 2010, passed after the Inquiry hearings.[47]

38.56. That statement of the conventional position itself requires explanation. Reference to the 2011 OIG report reveals some uncertainty about the significance of the 'inconclusive' category as used by the FBI.[48] Two refinements are required in relation to Scotland. The first is that fingerprint examiners begin by determining whether a mark is of comparable quality. If it is not it is set to the side as 'fragmentary and insufficient' and is not subject to comparison. The categories of finding as (a) an identification, (b) an exclusion or (c) inconclusive would be applied to marks that have been compared. The second refinement is that in the past Scottish practitioners (in common with their UK colleagues) were prepared to report to police where they have a 'strong suspicion' as to identity, though they would not speak to that in court.[49]

38.57. The practical issue is whether evidence ought to be given in court where there are reasons for suspicion of either identification or exclusion.

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41 MP_0007 pdf page 84, MP_0006 and Mr Pugh 24 November page 51ff correcting FI_0082 para 49 Inquiry Witness Statement of Mr Sheppard and Mr Sheppard 7 July page 182ff
42 See chapter 28 para 68ff
43 See chapter 41 para 35ff
44 Mr Pugh 24 November page 9
45 Professor Champod 25 November page 63
46 Professor Champod 25 November page 77
47 IAI Resolution 2010-18 URL: http://www.swgfast.org/Resources/100716_IAI_Resolution_2010-18.pdf
48 OIG (2011) pdf pages 37-40
49 See chapter 32 paras 8, 9, 15 and 17

38.58. It might be thought that there is a continuum between exclusion and identification. On one side of the continuum there is a varying degree of possibility of exclusion and, on the other side, an increasing possibility of a match.[50] At present in Scotland fingerprint examiners do not testify in court to any finding short of certainty as to unique identity or exclusion, for example where there is ridge detail consistent with a person but not sufficient to individualise. The same practice applies in Northern Ireland. PSNI would inform the police for intelligence purposes if they found ridge characteristics in agreement with an individual but not enough to identify, but Mr Logan had not given evidence in court on this basis.[51]

38.59. The position is different in England and Wales. Mr Chamberlain had twice given evidence that a mark was possibly made by a person although the examination was inconclusive. He described the judgment as to the likelihood of a match in those cases as "intuitive". In one case there was a limited number of persons who could have entered the relevant locus with the result that he did not require to establish uniqueness to the normal level of individualisation, only to discriminate among members of a limited class.[52]

38.60. Mr Zeelenberg said that he regularly gives evidence in the Dutch courts where his findings fall below the standard required for identification but he is unable to exclude a relevant person.[53] His situation is not directly analogous to the UK because in the Netherlands fingerprint examiners operate to a numerical standard.

38.61. Mr Nelson was of the view that it would be possible to give evidence that was not about identification, for example that a mark was consistent with an individual. One would need to be very careful that it did not mislead the court in any way. Care would have to be taken to ensure that it was not presented so as to appear more conclusive than it was.[54]

38.62. Discussion of this matter with Mr Chamberlain suggested that the response that a fingerprint examiner might be expected to give might vary depending on the terms of the question. Fingerprint examiners might be uncomfortable expressing an opinion on the likelihood of a match short of unique identity, but might be more comfortable answering a question whether or not they could exclude a particular person.[55]

38.63. Mrs Tierney told the Inquiry that she had become aware that in England and Wales reports did include a category of 'unable to exclude' and that was a development that SPSA's Scientific Advisory Group required to discuss.[56]

38.64. Mr Pattison explained that 'unable to exclude' evidence might assist the prosecution or the defence. Such evidence may provide corroboration. It was possible to foresee a situation where the Crown would seek to use 'unable to exclude' evidence to corroborate a high quality eyewitness identification. 'Unable to exclude' evidence could also be relevant to the defence. It might, for example, link

50 Professor Champod 25 November page 77
51 Mr Logan 16 November page 37
52 Mr Chamberlain 18 November pages 46-49
53 Mr Zeelenberg 8 October pages 36-37
54 Mr Nelson 13 November pages 20-21
55 Mr Chamberlain 18 November pages 46-49
56 Mrs Tierney 12 November pages 48-51

a mark to an incriminee (i.e. a person the defence alleges may have committed the crime). The Crown would want to be made aware of and to have access to such evidence.[57]

38.65. Mr Chamberlain's evidence was that by not reporting such evidence fingerprint examiners may be denying the courts a valuable source of evidence.[58] However, Mr Pugh was not convinced that there was a significant amount of additional evidence that was being missed as a result of current practice.[59]

38.66. Mr Pugh also highlighted the difficulty in interpreting such evidence. The statement that an individual cannot be excluded may inevitably lead to the question what the probability of a match is and a fingerprint examiner would be uncomfortable answering that question because there is no scale enabling the examiner to express an opinion as to the degree of similarity.[60] All that the examiner could do would be to place the raw evidence (i.e. the points in agreement) before the court, leaving the court to assess its value with the risk that the court may over or under-estimate its value.[61]

38.67. That echoes the reservation expressed by Ashbaugh in 'Quantitative-Qualitative Friction Ridge Analysis':

> "The so-called probability identifications of friction ridge prints is extremely dangerous, especially in the hands of the unknowing. The insufficiently detailed print still has only one possible source of origin, but a reliable means of determining the probability as to whether the examiner would be correct or incorrect is, as yet, unavailable."[62]

38.68. That, though, goes to the core of any fingerprint evidence because, as matters currently stand, examiners do not have data to support the probability of a unique identification and the gap between a finding of 'unable to exclude' and 'identity' could be narrow and bridged only by the 'leap of faith' of which Professor Champod spoke.[63]

Commentary

38.69. The possibility of using statistical models to quantify the likelihood of a match is discussed in chapter 41. The question is whether 'unable to exclude' evidence should be led in court before a statistical model has been validated.

38.70. A number of issues do arise.

1. The first relates to the range of marks to which such a finding might properly be applied. In the case of a mark that is fragmentary and insufficient the lack of discriminating detail may have the result that the 'unable to exclude' finding means no more than that the accused, like every other member of the world community, may be incapable of being excluded. Such a finding would be of no evidential significance.

57 Mr Pattison 13 November pages 145-147
58 Mr Chamberlain 18 November pages 46-48
59 Mr Pugh 24 November pages 9-10, 114-115
60 Mr Pugh 24 November pages 9-10
61 Mr Pugh 24 November pages 13-14
62 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 147
63 See chapter 33 para 49

2. Even where the mark is of comparable quality, there is force in the comment made by Mr Pugh. The Crown may wish to rely on such evidence as corroboration and that raises the question what the proper interpretation of a finding of 'unable to exclude' should be. Inevitably there is a risk that it will be inverted into a positive proposition that the mark is 'consistent with' the accused's print but in the current state of the discipline there is no basis on which the degree of consistency can be assessed.

3. The type of situation mentioned by Mr Chamberlain, where the examiner is being asked to discriminate among a finite number of persons, may be a special case because the examiner may be able to provide an answer without going as far as requiring to 'individualise' the mark.

38.71. It is a matter for the prosecution, defence and, ultimately, the court whether such evidence may have relevance in any particular case. I was advised that SPSA's Scientific Advisory Group was to discuss the matter.[64] I would not preclude evidence of this type being introduced, particularly in exceptional circumstances of the kind mentioned by Mr Chamberlain, but more general deployment of 'unable to exclude' evidence requires careful consideration of the first two issues that I have mentioned; and certainly if such evidence were to be led the examiner would have to give a full explanation of its limitations.

Recommendations

Differences of opinion between examiners

38.72. Differences of opinion between examiners should not be referred to as disputes.

Erroneous identifications or exclusions

38.73. The SPSA should investigate all 'erroneous' fingerprint identifications or exclusions.[65]

38.74. Cases where there is scope for a difference of opinion should not be classified as 'erroneous'. The cases that merit investigation are where there may have been a mistaken fingerprint analysis or a breach of accepted procedures.

38.75. The SPSA should consider whether their procedures require to be revised in the light of the findings of an investigation of an erroneous fingerprint identification or exclusion.

38.76. Reference is also made to the recommendation in chapter 41, paragraph 45, on the need for SPSA to monitor developments in other countries and to review its procedures accordingly.

Expression of opinion by examiners

38.77. Examiners should discontinue reporting conclusions on identification or exclusion with a claim to 100% certainty or on any other basis suggesting that fingerprint evidence is infallible.

64 See para 63
65 SG_0375 para 5.20.4 and recommendation 13

38.78. In chapter 35, paragraph 136, I have recommended training to enable examiners to articulate their reasoning.

38.79. In order to allow the court to assess the strength of their evidence, fingerprint examiners should highlight the variables relevant to their assessment and how they have formed their conclusions in the light of those variables. The conclusion should state if it has been reached through training and personal experience or on any other basis such as statistical analysis.

38.80. A more specific list of matters germane to the opinion is given in the recommendation in chapter 37, paragraph 123.

Training for court

Fingerprint examiners

38.81. All fingerprint examiners at SPSA should receive court skills training at suitable intervals. The training should emphasise the role of the expert witness.

38.82. Examiners should be discouraged from using stock phrases or responses to questions.

COPFS

38.83. COPFS should ensure that appropriate written guidance as to fingerprint evidence is available to its staff. COPFS should also ensure that a sufficient number of lawyers fully conversant with fingerprint evidence are available to deal with any issues that may arise.

Unable to exclude

38.84. Before a finding of ‘unable to exclude’ is led in evidence, careful consideration will require to be given to (a) the types of mark for which such a finding is meaningful and (b) the proper interpretation of the finding. An examiner led in evidence to support such a finding will require to give a careful explanation of its limitations.

CHAPTER 39

COMPLEX MARKS AND COMPARISONS AND QUESTIONED MARKS

Introduction

39.1. Any review of practice has to be pragmatic and consider the efficient use of resources. Perspective is given by the statistics in chapter 34 which show that the vast majority of fingerprint work contributes to police intelligence without resulting in a need for evidence to be prepared for use in court. Speed may be at a premium in that context and it may be desirable to keep bureaucratic requirements to a minimum so as not to diminish effective and efficient detection of crime and criminals. Imposing strict operational constraints on fingerprint examiners in every circumstance could unduly impede the efficiency of their work. The studies referred to in chapter 35 are relevant to striking a balance.[1] They suggest that there is less variability in the conclusions of practitioners when dealing with marks at either extreme of a spectrum of quality and that variability, and hence the scope for error, is greater when dealing with 'complex' marks.

39.2. The need to balance the efficiency of fingerprint comparison work and the tendency for variability to have most impact in the case of complex marks support the view of Professor Champod that there is a need to design a process whereby simple marks and complex marks are handled differently.[2]

39.3. The focus is on complex marks generally and not simply those that may be perceived at the time of comparison to have evidential significance. It has to be recalled that when Y7 was first identified as Ms McKie's mark it could not have been readily foreseen that that would be a finding of evidential significance since it was simply the elimination of one of a number of individuals believed to have had an innocent reason for having been present at the scene of the crime. Procedures should allow for the fact that what may initially be an insignificant elimination may turn out to be a critical identification and that fingerprint examiners cannot know with certainty that their findings will not have relevance beyond the intelligence gathering phase of an investigation.

39.4. The working assumption is that the complexity will derive from the quality of the mark but the same logic would apply where the comparison is complex for any other reason.

Definition of 'complex' marks

39.5. Some marks are of poorer quality than others and such marks were described at the Inquiry as being 'complex' or 'difficult'.

39.6. Professor Champod explained that the definition of a complex mark is not resolved in specialist literature and that there is room for research to provide a

1 See chapter 35 para 4ff
2 Professor Champod 25 November page 101

definition.[3] Some witnesses provided guidance as to what is meant. The practice in the Netherlands is discussed later in this chapter. Professor Champod stated that some Swiss identification bureaux use a 12-point rule and other criteria to make a distinction between complex and simple cases. If a mark has less than 12 characteristics it will be considered as complex, as will a mark with signs of disturbance, difficulties or what practitioners would refer to as 'red flags'.[4] Mr Chamberlain said that a complex or difficult mark was one where the characteristics were not very distinct within the image, with a lot of distortion or overlays. A mark with between six and eight observable characteristics would be characterised as complex.[5]

39.7. Mrs Tierney was unaware of any SPSA instructions specifically about the assessment of the quality of marks.[6] She thought that creating a prescriptive procedure for the assessment of complexity would be challenging since each mark has to be judged on its own merit[7] and she doubted whether it would be beneficial to set a rigid statistical criterion for the quality of marks.[8] That is exemplified by the experience with Y7. If a mark were to be defined as 'complex' solely by the criterion that fewer than, say, 12 characteristics can be observed, those who identified 16 characteristics would have been justified in treating it as not complex. The same could be said of QI2 Ross.

39.8. The absence of an agreed objective standard by which the complexity of a mark can be assessed creates difficulties in establishing whether a mark is 'complex' or not but the difficulties in defining complexity may be overstated, as Mr Chamberlain and Professor Champod's evidence suggests that complexity is capable of a 'high level' definition. For example, where one of the examiners involved in the ACE-V process has had doubts sufficient to merit seeking advice from a colleague that would seem eminently a case of a 'complex' mark.[9] Further research is required to identify factors that may produce either variability in the opinion of examiners or 'error' that can inform the decision whether a 'mark' is 'complex' and meriting special procedures. The Metropolitan Police 'tipping point' study[10] is a good example of research to ascertain the critical variables that produce practitioner inconsistency. The June 2011 OIG Review reports that after the Mayfield case the FBI and other organisations conducted research on a number of fronts including a study to measure the accuracy and consensus of latent print examiner decisions and the development of software to provide examiners with a tool to assess

3 Professor Champod 25 November page 129; see, subsequently, the SWGFAST definition in 'Standard Terminology of Friction Ridge Examination' - http://www.swgfast.org/documents/terminology/110323_Standard-Terminology_3.0.pdf; and paragraph 2.1.2 of the 'Standard for the application of blind verification of friction ridge examinations' - http://www.swgfast.org/documents/blind-verification/110315_Blind-Verification_1.0.pdf)
4 Professor Champod 25 November pages 101-102
5 Mr Chamberlain 18 November pages 12-14
6 FI_0152 para 75 Inquiry Witness Statement of Mrs Tierney
7 Mrs Tierney 12 November pages 98-99
8 FI_0152 paras 77-78 Inquiry Witness Statement of Mrs Tierney
9 See chapter 36 para 93
10 See chapter 35 para 4

fingerprint quality and a quantitative metric capable of measuring sufficiency.[11] The results of that research merit close scrutiny.

Position in practice

39.9. SPSA does not have a separate process for complex marks.

39.10. Some bureaux do treat complex marks differently. At the FSS, note-taking and examination tends to be more extensive if the mark is complex and/or of poor quality.[12] At the Metropolitan Police a fourth verification is undertaken of marks with low levels of disclosed detail and no unexplained features in disagreement.[13] In Switzerland the level of training of examiners who are allowed to verify a complex case is different.[14]

The Netherlands: 'multiple procedure'

39.11. In the Netherlands a distinction is drawn between complex marks and other marks. In an ordinary case a total of two examiners will be involved in the identification and verification of a mark but in the case of a complex mark a total of three examiners are engaged[15] and they follow a specific procedure: the 'multiple procedure'.[16] That procedure is used in a number of situations, some of which indicate complexity, for example where examiners differ in their conclusions, where an examiner thinks that a mark is of borderline quality, or when an examiner finds anything questionable in his identification.[17]

39.12. Key aspects of the procedure are:

(i) Three independent experts look at the mark separately. They will not have had previous involvement with the mark. Each is provided with a copy of the mark and the fingerprint form. They work separately and complete a detailed form.[18]

(ii) The examiner carries out an analysis of the mark and records the findings digitally on the image of the mark using software. On the form the examiner records his views about matters such as quality, how many points are present, the location of the points, the significance of the points and possible problems in the mark. The examiner will ascribe confidence levels to the features at this stage. At the end of the analysis stage the examiner considers if the mark is suitable for identification. It is rare for an examiner to proceed to a comparison if the mark is not considered to be suitable.

(iii) During comparison the examiner will grade points of similarity and note any differences and any explanation for them. The findings are recorded. If an

11 US Department of Justice, Office of the Inspector General (2011) A Review of the FBI's Progress in Responding to the Recommendations in the Office of the Inspector General Report on the Fingerprint Misidentification in the Brandon Mayfield Case, URL: http://www.latent-prints.com/images/FBI%20Mayfield%20Progress%20062011.pdf, pdf pages 7, 19-21
12 Mr Chamberlain 18 November pages 10-11
13 Miss Hall, Mr Pugh 24 November page 67
14 Professor Champod 25 November pages 101-102
15 Mr Zeelenberg 8 October pages 6-7
16 Mr Zeelenberg 8 October pages 3ff, 31ff and FI_0201 para 4 Inquiry Witness Statement (Supp.) of Mr Zeelenberg
17 FI_0201 para 4 Inquiry Witness Statement (Supp.) of Mr Zeelenberg
18 A version of which is DB_0768

examiner has designated a feature as low value during the analysis stage it should not be upgraded.

(iv) A separate evaluation stage follows, and the policy in the Netherlands is to postpone evaluation until analysis and comparison is complete. At this stage the examiner carries out an evaluation, records his conclusion and notes any points to discuss with colleagues.

(v) Once each examiner has completed ACE the examiners will consult and discuss their findings in detail.[19] They discuss their analyses first and if everybody agrees that a comparison should have taken place they will discuss the comparison. Thereafter the examiners discuss their respective evaluations, both the points of similarity and the points of difference. The mark is identified only if the examiners agree that the requisite standard is met (in the Netherlands examiners operate to a numerical standard of 10 to 12 points depending on the clarity of the mark).[20] The examiners must agree not only in relation to the decision but also in relation to each point relied upon in the identification. In arriving at their conclusion they proceed on the lowest common denominator so it is possible for a decision to be reached that a mark is not identified even where all three have independently found 12 or more points of similarity if they differ as to the points in similarity and, for example, after discussion can agree on no more than nine points. There is, though, the option for Mr Zeelenberg still to give evidence to the Dutch courts in that situation and he would do so on the basis that he was 'unable to exclude'.[21]

Separate process for complex marks

39.13. The Dutch 'multiple procedure' accords with the key requirements that Professor Champod envisaged as being necessary for complex marks: more in-depth analysis, documentation and enhanced verification.

39.14. Analysis as part of the ACE-V process is discussed in chapter 36 and the need for documentation or note-taking in chapter 37. There is a need to analyse the whole mark, not just a target area, and for complex marks it is recommended that notes be taken at each stage of the ACE-V process.

39.15. In relation to enhanced verification, Professor Champod made two suggestions. The first was that blind verification should be considered for complex marks[22] as there is a greater risk that examiners might be influenced by other examiners' findings.[23] Secondly, the process of verification should not be confined to a consensus as to the conclusion but should extend to a technical review of the points relied upon by each examiner at the stages of analysis and comparison because inconsistencies relating to individual points may highlight issues concerning: the levels of tolerance being applied; and the reliability of characteristics believed to be in common or explanations for any difference.[24] That

19 Mr Zeelenberg 8 October page 31ff
20 Mr Zeelenberg 8 October pages 22-23
21 Mr Zeelenberg 8 October pages 34-37
22 Professor Champod 25 November page 79
23 Professor Champod 25 November pages 111-113
24 Professor Champod 25 November pages 110-113

is consistent with the findings of the OIG in the Mayfield case and of this Inquiry in relation to Y7 and QI2 Ross.[25]

39.16. Differences between examiners, for example, in relation to the interpretation of observable 'events' can raise questions about the reliability of the conclusion and it should not be assumed that merely because there is agreement between examiners on a finding of identification or exclusion that the finding is suitably robust if they differ on the routes by which they arrive at that conclusion. In particular, it is not necessarily sufficient that they agree that there is some common 'event' in mark and print if they differ as to the interpretation of the precise nature of the characteristic. For example, Mr MacPherson and Mr Mackenzie agreed the identification of QI2 Ross but with material inconsistencies between them as to their reasons. For example, while they agreed at the generic level that there were matching 'events' at (a) SCRO points 1/10/16 and (b) SCRO points 11/12, they differed as to the interpretation of the events with (a) being either an eyelet or a spur shape and (b) being either a lake or a bell. Those differences in interpretation were symptomatic of the lack of clarity in the mark and the application of inappropriate tolerances in the comparison.

39.17. A 'technical review' is a discussion between the examiners involved in the ACE-V comparison of a mark on the substance of their findings. The objective is to afford examiners an opportunity to reflect on any differences between them on matters of detail, with a view to assessing whether the detail on which they rely is sufficiently reliable to support the conclusion.

Commentary

39.18. The evidence to the Inquiry does support the conclusion that enhanced procedures do require to be put in place for the handling of 'complex' marks.

39.19. While further research is required to identify the factors that may be relevant to the definition of 'complexity' for this purpose, meantime there are precedents to be found in the practice in the Netherlands, Switzerland and England and practitioners should be able pragmatically to know a complex mark when they see it.

39.20. There is merit in the proposal that the procedures for handling 'complex' marks should include a technical review of the substantive reasoning of each examiner. If examiners have resolved a doubt by mutually exclusive reasoning (take, for example, the conflicting interpretations by Mr MacPherson and Mr Mackenzie of SCRO points 1, 10 and 16, and 11 and 12 in QI2 Ross)[26] the inconsistency ought to give rise to careful reflection on (a) the quality of the assumed similarities on which the conclusion depends or, as the case may be, (b) the cogency of the explanations for any difference. Requiring examiners to participate in a technical review would expose any inconsistency in reasoning and afford them an opportunity to reflect on the robustness of the finding, which is the essence of verification.

25 See chapter 35 para 39ff
26 See chapter 26 para 21ff

Questioned marks

39.21. When Ms McKie denied that she had gone as far as the bathroom in Miss Ross's house and thereby cast doubt on the identification of Y7 both the police and SCRO were presented with a novel situation and neither had appropriate procedures.[27] They resorted to the ad hoc arrangements described in chapter 7 that suffered from the deficiencies identified in that chapter and in chapter 28.[28]

39.22. There should be a clear procedure to meet this eventuality. It is a matter for the police and COPFS whether they would wish the comparison to be checked by SPSA or by some other agency or person. Assuming that the police or COPFS require a fingerprint comparison to be reconsidered by SPSA because they are aware of a conflict with other evidence, or for any other reason, the mark should be referred to the review panel who should consider the matter in accordance with procedures as recommended in chapter 36.[29]

Recommendations

Research

39.23. Research should be undertaken into which marks ought to be assessed as complex.

Procedure for complex marks

39.24. The SPSA should develop a process to ensure that complex marks such as Y7 and QI2 Ross are treated differently. Such a process should include the following principal elements:

(i) Examination should be by three suitably qualified examiners.

(ii) Notes should be taken at each stage of ACE-V by every examiner involved in the process. Those notes should record the information specified in paragraph 116 of chapter 37.

(iii) No examiner should disclose his or her conclusion to another examiner until all three examiners have reached their independent conclusions.

(iv) After all three examiners have completed their individual comparisons they should meet and review the substantive basis of their conclusions. The reasons each has for their respective conclusions should be explored, even when they agree that an identification can be made. Any differences of opinion among them should be discussed in order to determine whether the conclusion is reliable. A note should be kept of the matters discussed at the technical review meeting.

Questioned marks

39.25. Where the police or COPFS require a fingerprint comparison to be reconsidered by SPSA for any reason the matter should be referred to the review panel to be addressed in accordance with the procedures recommended in chapter 36, paragraph 121.

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27 See chapter 7 para 184
28 See chapter 28 para 29
29 Para 122

CHAPTER 40

ACCREDITATION, TRAINING, PERFORMANCE MANAGEMENT AND EXPERT WITNESS STATUS

Introduction

40.1. The reliability of fingerprint identification depends to a significant extent on the competence of the examiners involved. Relevant factors include initial training, continuing professional development, competence monitoring and accreditation of examiners and of bureaux. Arrangements for these have all changed since 1997.

40.2. A new post of Forensic Science Regulator was created by the UK Government in 2007 and Mr Rennison has been the Regulator since 2008. The role involves advising the UK Government on quality standards in the provision of forensic science and includes:

- establishing and monitoring compliance with quality standards in the provision of forensic science services to the police service and the wider criminal justice system;
- ensuring the accreditation of those supplying forensic science services to the police, including in-house police services and forensic suppliers to the wider criminal justice system.[1]

40.3. Among the 'high level principles' the Regulator has set governing the regulation of quality and standards are that

- providers should be accredited by a recognised independent body to accepted standards;
- practitioners should be able to demonstrate, through an independent process, their on-going competence and development;
- responsibility for quality and competency standards rests with senior managers of provider organisations as well as with individual practitioners;
- each method should be based on sound science supported by both sufficient data to justify its use within the criminal justice system and a robust, transparent, balanced and logical interpretation model, and, where possible, validated according to accepted scientific procedures.[2]

40.4. The Forensic Science Advisory Council (FSAC) is an independent body established to advise and support the Regulator in the exercise of his duties. Mr Nelson, Director of Forensic Services at SPSA, is a member of the Council. The Council has a number of specialist groups including one to consider fingerprint quality standards.[3]

1 EB_0001 paras 1-3
2 EB_0001 paras 1-15
3 The Fingerprint Quality Standards Specialist Group held its first meeting on 2 July 2010.

40.5. The Regulator has also established a process to manage complaints about forensic science quality standards.[4]

40.6. The Regulator's jurisdiction extends primarily to England and Wales but he reached agreement with the authorities in Scotland and Northern Ireland that they should co-operate and that standards should be UK wide.[5] It is within this context that the SPSA operates.

Accreditation

Historical perspective

40.7. In his evidence to the Inquiry, Mr Rennison noted that regulation can be at three levels: regulation of institutions, of individuals and of techniques.[6]

40.8. He told the Inquiry that it had been an essential part of UK Government thinking that forensic science would be regulated through the accreditation of the individual practitioners. However the situation had changed.[7]

40.9. The Council for the Registration of Forensic Practitioners (CRFP) had been at the core of the policy.[8] It was set up in 1999[9] with the aim of developing, implementing and improving standards in the practice of forensic science. It was a professional regulatory body which maintained a register of currently competent forensic practitioners across eleven disciplines. Registration was by application, giving details of the applicant's career, qualifications and training. References were required. A list of recent casework had to be submitted from which examples were selected for detailed scrutiny and assessment. Each practitioner required to undergo re-validation every four years. The CRFP examined the steps taken to keep up to date with developments in the discipline, maintain competence, and develop professional expertise. Registration was voluntary, in the sense that there was no prohibition on practising as a forensic scientist without having registration.

40.10. The original target was to register the vast majority of forensic practitioners. This did not happen. Mr Rennison conducted a review and found that less than 30% of the practitioner population was registered. Most were "the police practitioners" and not those working in laboratories.[10]

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4 EB_0001 para 10. One of Mr Rennison's roles is to investigate complaints about quality standards in forensic science. He investigates complaints about breakdowns in quality or concerns about the validity of science being used in forensic science. At the time of the Inquiry hearings he had undertaken two such investigations, one in the use of low template DNA technology and one into the science behind the analysis of controlled drugs on currency. Mr Rennison 8 July pages 115-116

5 Mr Rennison 8 July page 77

6 See chapter 34 para 15

7 Mr Rennison 8 July page 116ff

8 See EB_0001 Report to the Inquiry by Mr Rennison, Forensic Science Regulator

9 UK Parliament. House of Commons Hansard Written Answers for 21 May 1998 (pt 4) URL: http://www.publications.parliament.uk/pa/cm199798/cmhansrd/vo980521/text/80521w04.htm#80521w04.html_sbhd3.

10 Mr Rennison 8 July pages 116-118

40.11. In 1995 forensic scientists across Europe formed an organisation known as the European Network of Forensic Science Institutes (ENFSI).[11] Membership of ENFSI was open to forensic science laboratories with 25 or more staff, offering a broad range of forensic expertise. Member laboratories were required to be accredited to ISO 17025, an international standard[12] designed to guarantee the technical competence of testing and calibration laboratories.[13] In the UK accreditation is through assessment by the United Kingdom Accreditation Service (UKAS). When Mr Rennison looked at the accreditation model through UKAS, he realised that practitioner competence was dealt with through that accreditation process. Requiring forensic scientists to be regulated through registration with the CRFP produced duplication. Moreover, he concluded that practitioners were assessed through the accreditation process to a higher level and, accordingly, registration was an unnecessary layer of regulation. Mr Rennison proposed the model of regulation of practitioners through accreditation of their employers and ACPO and NPIA agreed.[14] The police backed away from the CRFP with the result that the numbers registered would decline rapidly. Its funding (via subscription) was going to decrease and the CRFP Board had no option but to wind up the company.[15] Mr Rennison consulted with the Crown Prosecution Service and other experts. The question was whether there was a risk to the criminal justice system if the CRFP closed and Mr Rennison reached the conclusion there was not.[16] The CRFP ceased to operate on 31 March 2009.[17]

40.12. Mr Rennison sees quality assurance through organisations such as SPSA as a better route for the regulation of practitioners than a stand-alone professional body. In his opinion accreditation of the institution is more testing and also consistent with the European model which is now emerging.[18] He advised the Inquiry that he was impressed by an accreditation based model that he had seen in operation in the State of Victoria and other states in Australia where it was adopted some years ago.[19]

Accreditation of institutions

40.13. The National Academy of Sciences noted the importance of proper quality assurance procedures: “Forensic laboratories should establish routine quality assurance and quality control procedures to ensure the accuracy of forensic analyses and the work of forensic practitioners. Quality control procedures should be designed to identify mistakes, fraud, and bias; confirm the continued validity and reliability of standard operating procedures and protocols; ensure that best

11 An organisation established with the purpose of sharing knowledge, exchanging experiences and coming to mutual agreements in the field of forensic science. Membership is made up of 59 institutes in 34 countries across Europe.
12 ISO (International Organisation for Standardisation) - a non-governmental organisation established in 1947. ISO standards are developed by technical committees comprising experts from the industrial, technical and business sectors which have asked for the standards, and which subsequently put them to use. These experts may be joined by representatives of government agencies, testing laboratories, consumer associations, non-governmental organisations and academic circles.
13 EB_0001 para 37
14 Mr Rennison 8 July pages 118-119
15 It was a not for profit company limited by guarantee.
16 Mr Rennison 8 July page 119
17 EB_0001 para 35
18 Mr Rennison 8 July page 121
19 FI_2411

practices are being followed; and correct procedures and protocols that are found to need improvement."[20]

40.14. The Inquiry was addressed on a number of standards:

- ISO 9001, which is a standard for quality management systems;[21]
- ISO 17025, a standard which includes the quality management component of ISO 9001 and also covers technical competence;[22] and
- ISO 17020, a standard that Mr Rennison considered to be more appropriate to inspection bodies rather than analytical laboratories.[23]

40.15. Mr Rennison gave evidence in July 2009. At that time discussions were about to start on a proposal for EU regulations mandating the accreditation of fingerprint laboratory activities, to cover all analysis and interpretation of fingerprint evidence. The idea was that such work should be operating within the international standard ISO 17025: International Standard, ISO/IEC 17025:2005 'General Requirements for the Competence of Testing and Calibration Laboratories'. This is the base standard of the Regulator's model.[24]

40.16. SPSA is registered to ISO 9001. SPSA has taken the decision to move to ISO 17025 in consultation with UKAS which expects SPSA to operate under that standard[25] and Mr Rennison commented that in applying for accreditation under ISO 17025, SPSA are leading the way in the UK as SPSA is applying for one single accreditation for the entirety of SPSA Forensic Services.[26]

40.17. The Metropolitan Police has a quality management system assessed and certificated independently by the British Standards Institute to ISO 9001.[27] Processes are documented and controlled.[28] There are two internal audits per year. These internal audits seek to identify areas of non-conformity. The internal audit programme has introduced assessment of the technical competence of examiners.[29]

40.18. The Forensic Science Service is the one organisation in England and Wales that has achieved ISO 17025 accreditation for fingerprint work. Mr Chamberlain's understanding was that there were 16 European organisations that were also accredited for fingerprint comparison work.[30] In order to obtain accreditation FSS

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20 Committee on Identifying the Needs of the Forensic Sciences Community, Committee on Science, Technology and Law Policy and Global Affairs, Committee on Applied and Theoretical Statistics Division on Engineering and Physical Sciences, National Research Council. Strengthening Forensic Science in the United States: A Path Forward, Washington, D.C.: National Academies Press, 2009, page 215
21 EB_0001 paras 45-47
22 EB_0001 paras 47-48
23 Mr Rennison 8 July page 84
24 Mr Rennison 8 July page 79
25 Mr Nelson 13 November page 53
26 Mr Rennison 8 July page 90 and Mr Nelson 13 November page 58
27 MP_0008 para 4.1
28 MP_0008 para 4.5
29 MP_0008 para 4.8
30 FI_0136 para 19 Inquiry Witness Statement of Mr Chamberlain; see also Professor Champod in ED_0003 para 44

had to demonstrate to UKAS that fingerprint comparisons were compliant with the requirements of the standard. In order to retain accreditation FSS must undertake regular in-house audits including internal and external case work trials. FSS is subject to regular external assessment by UKAS.[31]

40.19. Mr Rennison explained that the ISO standards were not written for the forensic science context and "mental contortions" are required to make them fit into the forensic context. Gaps had been identified but Mr Rennison's view was that, of the available standards, ISO 17025 was the standard most directly applicable to fingerprint services. Mr Chamberlain commented that ISO 17025 is considered by both ENFSI[32] and other organisations, for example the American Society of Crime Laboratory Directors (ASCLAD), as the most appropriate quality standard for laboratory based fingerprint examination. Mr Chamberlain acknowledged that ISO 17025 was a general standard for application to all testing laboratories, but he added that the International Laboratory Accreditation Cooperation (ILAC) had published a guideline 'Guidelines for Forensic Science Laboratories' ILAC-G19:2002 which relates the various requirements of the IS0 17025 standard to forensic science activities.[33]

40.20. ISO 17025 covers all three levels of regulation: the organisation, the individual and techniques. It holds the senior management in an organisation accountable for quality, it holds the practitioners accountable and it also demands proper validation of methods.[34]

40.21. ISO 17025 accreditation is obtained through the independent observation of UKAS. They employ trained assessors skilled in the relevant field. UKAS expects the organisation to have clear quality manuals that set out procedures including, for example, the audit processes, and requires clear operating procedures and evidence of the validation of methods.[35]

40.22. At the start of the accreditation process assessors review the operating and quality manuals of the organisation. Having understood those, they visit the organisation and see whether those procedures are working in practice. The accreditation process does not itself prescribe any qualifications or training[36] but the review will cover recruitment, qualification and training records and staff are observed at their work bench to see that they are complying with training and operating procedures. A random sample of different case files is examined and a number of practitioners are interviewed.[37]

40.23. At the accreditation stage methodologies or techniques would be audited. In that regard Mr Rennison drew a distinction between (1) the techniques applied to the development of fingerprints (e.g. the powders applied at the scene of a crime) and (2) the interpretation of fingerprints.[38] Mr Rennison stated that it was more difficult to assess the subjective judgments associated with the interpretation of

31 FI_0136 paras 14-23 Inquiry Witness Statement of Mr Chamberlain
32 See EB_0001 para 37
33 FI_0136 para 15 Inquiry Witness Statement of Mr Chamberlain
34 Mr Rennison 8 July pages 82-83
35 Mr Rennison 8 July pages 85-86
36 Mr Rennison 8 July page 87
37 Mr Rennison 8 July pages 84-87
38 Mr Rennison 8 July page 88

fingerprints. His view is that ISO 17020 (which is designed for inspection bodies) is more appropriate for a function that employs professional judgment and in due course there may be scope for that standard to be applied to fingerprint work.[39]

40.24. If an organisation achieves its accreditation, then within six months UKAS return and undertake a first surveillance visit. Thereafter there is an annual surveillance visit.[40]

40.25. Mr Rennison carried out a risk assessment to identify where the gaps are in the application of these standards in the forensic context and a number of gaps had been filled with a set of standards that the Regulator published. He had introduced a requirement for all forensic practitioners and all organisations to use the National Occupational Standards developed by Skills for Justice.[41]

40.26. The standards that Mr Rennison published are at a generic level. There is a need to drill down to the detail of different forensic disciplines. He had carried out some analysis and found there were 60 to 65 different forensic disciplines. Some adjustment of the standards is required for each of these disciplines. Mr Rennison had put in place a programme over the following two years to complete that additional work comprising 60/65 appendices. One of those would be fingerprints, properly broken down into fingerprint development work and, as a separate discipline, the interpretation and presentation of results.[42] In addition to foreseeing the need for more detailed standards, Mr Rennison had recognised that there is no coherent strategy for research and he had been pushing Government (both at the UK level and the devolved administrations in Scotland and Northern Ireland) for such a strategy, including contributions from academics and commercial providers.[43]

40.27. One of the gaps in ISO 17025 is proper standards regarding the interpretation and presentation of scientific evidence to the courts. At the time of the Inquiry hearings Mr Rennison was creating a specialist group of experts to advise on that with a senior judge, members of the Bar Council and statisticians nominated by the Royal Statistical Society. It would look at how best to present this evidence to the courts in a way that was useful to the courts and not confusing.[44]

Commentary

40.28. UK policy is now focussed on regulation at the institutional level, with accreditation of practitioners and the forensic science techniques that they apply being subsumed within that. Accreditation under ISO 17025 will provide an additional measure of quality assurance with the benefit of external scrutiny but there are gaps. SPSA Forensic Services is seeking to achieve ISO 17025 accreditation and this is to be encouraged. There are gaps in ISO 17025 as regards fingerprint examination work, and as noted in chapter 35 there is for example a wider issue as to the lack of objective standards for fingerprint examination work. Accordingly

39 Mr Rennison 8 July page 91
40 Mr Rennison 8 July pages 84-85
41 Mr Rennison 8 July pages 89-93. Skills for Justice is the Sector Skills Council covering employers, employees and volunteers working in the Justice, Community Safety and Legal Services sectors across the UK.
42 Mr Rennison 8 July pages 94-95
43 Mr Rennison 8 July pages 96-97
44 Mr Rennison 8 July pages 95-96

accreditation under ISO 17025 should not detract from the need for further work in such areas. As Mr Rennison recognises, that requires preparation of standards that encapsulate current best practice and also a coherent strategy for research, with that research feeding back in to an on-going review of standards.

Training of examiners

40.29. As already noted, the accreditation process does not itself prescribe any qualifications or training.[45]

40.30. One of the concerns of HMICS in its 2000 report had been that although there were areas of good practice regarding liaison by senior staff with other bureaux, SCRO appeared to have an 'internalised' culture. It was the biggest fingerprint bureau in Scotland and the fourth largest in the UK and partly due to its size it had viewed itself as self-sufficient in some respects including, to a degree, training.[46] Although SCRO trainee fingerprint officers attended the initial and intermediate courses at the National Training Centre in Durham, much of their training was in-house and they did not use the advanced course at Durham because SCRO thought it was too focussed on English courts and legislation.[47] HMICS's view was that the continued focus on in-house training by fellow staff members at SCRO presented "a risk that bad practices may be spread, elitist attitudes reinforced and new ideas stifled."[48]

40.31. One of the changes made following the HMICS report was that trainee examiners started attending all three courses at Durham.[49]

40.32. Mr McGinnies, who is in charge of training fingerprint officers in Scotland,[50] explained that there had been further changes in training with a national fingerprint learning programme, supported by ACPO:

- SPSA manages training of trainees across Scotland;
- Skills for Justice set standards for fingerprint work on the national programme;
- the National Police Improvement Agency (NPIA) manages the delivery of training for trainees on a UK basis; and
- the national programme, which is adhered to by SPSA Forensic Services, is administered by the NPIA and validated by Teesside University.[51]

40.33. Under the national regime provided by the NPIA, trainees study the matters specified in a national curriculum. Trainees in Scotland follow a common training programme which applies across the SPSA[52] and must achieve competence

45 Mr Rennison 8 July page 87
46 SG_0375 para 8.14.1
47 SG_0375 para 7.2.3
48 SG_0375 para 7.2.8
49 See chapter 21 para 21
50 FI_0193 para 5 Inquiry Witness Statement of Mr McGinnies
51 FI_0193 paras 10-15 Inquiry Witness Statement of Mr McGinnies
52 FI_0193 paras 22, 24 Inquiry Witness Statement of Mr McGinnies

in respect of the Scottish criminal justice system and legal matters relevant to the work of a fingerprint examiner based in Scotland.[53] The national standards of competence a trainee must achieve before becoming qualified are set out in National Occupational Standards published by Skills for Justice.[54]

40.34. The NPIA sets the framework of training and produces and leads NPIA courses. Some training is devised and delivered by the SPSA within this framework. There are a number of discrete stages, which Mr McGinnies described in detail to the Inquiry,[55] culminating in an advanced course and assessment which a trainee undertakes after approximately three years of training.

40.35. A trainee who successfully completes the training programme obtains the Foundation Degree in Fingerprint Identification from the University of Teesside.[56] The degree is awarded by the university as a result of external validation of the programme and the trainee's work.[57]

40.36. It is at this point that arrangements are made for a trainee to be recognised as a qualified fingerprint examiner or expert. Those arrangements are discussed later in this chapter.

Performance Management

40.37. The reliability of fingerprint evidence depends not only on the initial training of examiners but on arrangements for their continuing development and competence, and quality assurance measures to check the reliability of their work.

On-going development and competence

40.38. At the time of its inspection in 2000 HMICS noted that there was little refresher training or continuing professional development (CPD) and that this carried risks of perpetuating bad practices. It recommended that regular refresher training should be incorporated into a national training standard for fingerprint experts to ensure that expertise was maintained at the highest level taking account of developments in theory and technology.[58]

40.39. SPSA is seeking to integrate the training of fingerprint staff more firmly within the context of the work of SPSA Forensic Services as a whole.[59]

40.40. It has a training unit and there is a policy for the continuing professional development of fingerprint experts.[60] The policy includes various essential elements such as annual competency testing. Further development opportunities, as set out in the policy, include secondments and workplace rotations, alongside membership of professional bodies such as the Fingerprint Society, the International Association for Identification and the Expert Witness Institute.[61] The policy also mentions

53 FI_0193 paras 26, 31 Inquiry Witness Statement of Mr McGinnies
54 FI_0193 para 21 Inquiry Witness Statement of Mr McGinnies
55 FI_0193 paras 28-92 Inquiry Witness Statement of Mr McGinnies
56 FI_0193 para 89 Inquiry Witness Statement of Mr McGinnies
57 FI_0193 para 32 Inquiry Witness Statement of Mr McGinnies
58 SG_0375 paras 7.5.1-7.5.4
59 FI_0193 paras 119-122 Inquiry Witness Statement of Mr McGinnies
60 FI_0193 para 109 Inquiry Witness Statement of Mr McGinnies and MM_0055
61 MM_0055

obtaining further and higher educational qualifications such as the University of Teesside's foundation degree in fingerprint examination, and Mr McGinnies explained that arrangements were being considered under which all fingerprint examiners could obtain a foundation degree from the university.[62]

40.41. The Metropolitan Police has developed a learning programme, and a professional development team, including experienced examiners, support workplace development and manage the foundation degree programme. Mr Pugh described the foundation degree from Teesside University as involving ten modules, which "map" to the relevant National Occupational Standards for fingerprint examination. Of 170 examiners 40 were enrolled on the foundation degree. The remaining examiners have to demonstrate competence by completion of a module based on the foundation degree. All examiners have to undergo a performance development review.[63]

40.42. The SPSA has adopted a personal development and review process developed by ACPOS. This includes the identification of individual development requirements to ensure core competence and standards are maintained, as part of an annual review process.[64] The process involves the agreement of specific targets in an annual personal learning and development plan, which identifies training and development for core 'fingerprint examiner' skills.[65]

40.43. There is no policy that requires fingerprint examiners to undertake a certain number of hours of training per year but a fingerprint examiner must undertake relevant training on a regular basis and ensure that court skills are maintained. Mr McGinnies indicated that failure to undertake learning and development would lead to adverse comment in the next personal development review. There is therefore an incentive for fingerprint examiners to continue learning and developing. Training needs are also identified on a more informal basis. Fingerprint examiners often identify their own training needs and are expected to do so.[66]

40.44. Training can be sourced in a number of ways including internal courses. Until 2009, every two years SPSA held a compulsory two-day training course for all fingerprint examiners which covered 'core skills' such as court skills. The course was under review but the basic requirement for regular training would remain.[67]

40.45. The SPSA encourages examiners to attend external events such as the annual conference of the Fingerprint Society, the Forensic Science Society and courses provided by other providers, such as other fingerprint bureaux.[68] SPSA's view is that the use of external providers is essential to ensure that fingerprint examiners benefit from the opinions of different experts and to prevent SPSA fingerprint examiners becoming insular.[69]

62 FI_0193 paras 119-122 Inquiry Witness Statement of Mr McGinnies
63 MP_0008 paras 3.1-3.10
64 FI_0153 para 27 Inquiry Witness Statement of Mr Nelson and MM_0055
65 FI_0193 paras 109-112 Inquiry Witness Statement of Mr McGinnies
66 FI_0193 paras 113-115 Inquiry Witness Statement of Mr McGinnies
67 FI_0193 para 116 Inquiry Witness Statement of Mr McGinnies
68 Mr Nelson 13 November pages 18-20 and Mr McGinnies 4 November page 117. Examples of conferences at the time of the Inquiry hearings included a European Conference in Glasgow, the Forensic Science Society and the Scottish Institute of Policing Research.
69 FI_0193 paras 117-118 Inquiry Witness Statement of Mr McGinnies and Mr Nelson 13 November pages 18-19

Monitoring competence

40.46. In the Forensic Science Service fingerprint examiners must maintain and produce evidence of competence. There is regular competence testing and participation in declared and undeclared (blind) trials.[70]

40.47. Mr McGinnies explained that SPSA examiners' skills are also monitored in a number of ways and that this assists in developing training and also in ensuring that the quality of work remains of a high standard.[71] He considered that work was constantly checked as a result of verification in the ACE-V process.[72]

40.48. In addition, SPSA utilises dip sampling, an annual competency test and the personal development review process to make sure that people continue to operate to the level of competence they attained through their initial training and assessment and to develop their skills.[73]

Undeclared testing

40.49. Undeclared testing involves cases being submitted as if genuine to test procedures and the quality and accuracy of processes. HMICS had suggested in 2000[74] that this was a tool worthy of consideration but such tests are not in use at SPSA.

40.50. Mr Nelson indicated that the Collaborative Exercise Group which he chaired found that both in the UK and Ireland there were considerable practical difficulties. Staff in laboratories would phone police or interrogate police systems in order to find out more information and discover there was no information available on these systems. This would immediately reveal that it was an undeclared test.[75] He observed that the Forensic Science Service may not have access to police systems in this way. Mr McGinnies spoke of other practical and technical difficulties.[76]

Dip sampling

40.51. Random dip sampling of at least 5% of completed casework at SPSA is carried out locally by nominated personnel. This commenced on a monthly basis in 2008.[77] SPSA can track a case and go through all notes and examination procedures to make sure that the issued result was correct.[78] The results of the sampling are reviewed locally by line managers and this will form part of a standard operating procedure within the ISO 17025 standard.[79]

40.52. Since becoming chairman of the Fingerprint Scientific Advisory Group[80] in May 2009 Mrs Tierney had opened discussions with the other fingerprint managers about developing this process by making personnel available to carry out the

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70 FI_0136 para 35 Inquiry Witness Statement of Mr Chamberlain
71 FI_0193 paras 123, 126 Inquiry Witness Statement of Mr McGinnies
72 FI_0193 para 125 Inquiry Witness Statement of Mr McGinnies
73 Mrs Tierney 12 November pages 146-150
74 SG_0375 pdf page 14 para 6.6.
75 Mr Nelson 13 November pages 34-35 and FI_0153 para 102 Inquiry Witness Statement of Mr Nelson
76 Mr McGinnies 4 November pages 106-109
77 FI_0152 para 31 Inquiry Witness Statement of Mrs Tierney
78 Mr Nelson 13 November page 35
79 FI_0153 para 93 Inquiry Witness Statement of Mr Nelson. See later in chapter for the ISO standard.
80 Mr Shearn had recommended the formation of such a group in his report of December 2006 - DB_0649. Mr Nelson established the group in January 2007 with a representative from each of the four bureaux in Scotland. It was chaired initially by Mr McGregor – FI_0112 para 11 Inquiry Witness Statement of Mr McGregor.

dip sampling at bureaux other than their place of work. This would introduce an external element into the process and encourage sharing of best practice across each of the locations.[81]

Annual competency test

40.53. Mrs Tierney said that at one stage it was thought that the Council for the Registration of Forensic Practitioners would suffice to demonstrate on-going competency. NPIA were now trying to introduce a national dip sampling programme to measure competence.[82] It appears that there is no uniform competency or proficiency system across the UK.[83] Mr Pugh indicated that the Metropolitan Police have periodic competency tests,[84] as do other forces of which he had knowledge.[85] He was interested in a more efficient test being introduced.[86]

40.54. SCRO examiners had been subject to an annual competency test but it was set in-house. When HMICS recommended in 2000 that the external provision and management of competency testing for experts was an aspect that needed pursued with vigour "to seek an early, sustainable and defensible programme,"[87] a test from an external provider was introduced instead, and that continues to be the position. All SPSA fingerprint examiners undertake an annual competency test provided by an external provider, CTS.[88] Mr Nelson described it as an example of a declared trial.[89]

40.55. Mrs Tierney indicated that the test SPSA currently uses is the only external competency test available.[90] It incorporates a range of marks designed to test the skill and expertise of the examiner and is made up of manual comparisons, as are the NPIA initial, intermediate and advanced assessments for trainee officers.[91]

40.56. The Inquiry was interested in competency testing based on 'close non matches': prints known to come from different sources which contain a number of features in agreement that could potentially lead an examiner towards a conclusion that they come from the same source.[92] Professor Champod was unaware of any systematic search for illustrative examples and said that there are limited documented cases with the Mayfield print being the most notorious.[93] Mr McGinnies said that the SPSA shows trainees examples and makes them aware of the fact that marks may be extremely similar but there is a risk that they may be 'close non matches'. SPSA discusses the Brandon Mayfield case with trainees as a means of highlighting the issue in a practical and real way.[94]

81 FI_0152 para 31 Inquiry Witness Statement of Mrs Tierney
82 FI_0152 paras 109-111 Inquiry Witness Statement of Mrs Tierney
83 Mr Chamberlain 18 November page 108
84 Mr Pugh 24 November page 46
85 Mr Pugh 24 November page 52
86 Mr Pugh 24 November page 57
87 SG_0375
88 Collaborative Testing Services Inc
89 Mr Nelson 13 November page 36
90 Mrs Tierney 12 November page 189
91 FI_0152 para 19 Inquiry Witness Statement of Mrs Tierney
92 ED_0003 para 61ff
93 ED_0003 para 61ff
94 FI_0193 paras 102-104 Inquiry Witness Statement of Mr McGinnies

40.57. Mrs Tierney explained that Evett and Williams had raised the issue of using automated fingerprint recognition computer systems to incorporate 'near misses' in competency testing. While she was training manager, SPSA did incorporate a series of computer based assessments in internal fingerprint training. These were not specifically designed to include near misses but were based on the candidate donors returned as a result of each computer search. She saw the benefit of further testing of this nature if a practical means of managing the computer search programme to generate near miss respondents was established, and if such a programme was incorporated within an externally applied competency test.[95]

Addressing performance issues

40.58. Mr Wertheim commented that in his view a competent expert correctly following the comparison methodology would not confuse one person's fingerprint with someone else's fingerprint. The examiner would either correctly identify the fingerprint or would be unable to reach a conclusion because the distortion in the fingerprint was too great. If the examiner made an incorrect conclusion that was generally cause for removal from case work in the United States as having shown the examiner to be unreliable.[96]

40.59. The subjective nature of fingerprint evidence and research indicating the potential for variations among practitioners, particularly when comparing a complex mark,[97] suggest that the performance of fingerprint examiners may not be so 'black and white'.

40.60. Mrs Tierney's evidence indicates that the proper handling of performance issues raises complex issues, not least because of the risk of prejudicing the necessary open and challenging culture within a bureau. She stated that at the Edinburgh bureau there was a significant volume of healthy debate among examiners. People were happy to exchange views and opinions and these would not be raised as disagreements or performance issues. If an examiner was persistently coming to conclusions that were different to those being arrived at by their colleagues that would be a 'performance flag' and she would wish to investigate further.[98] That pragmatic balance is consistent with my observations on the need to avoid characterising differences of opinion as 'disputes' and for a discriminating approach to 'erroneous' identifications:[99] a difference of opinion among examiners does not necessarily raise a performance issue.

40.61. In their 2000 report HMICS recommended that a common procedure, subject to validation by an external body, be put in place in all fingerprint bureaux to deal with failure in the course of competency testing.[100]

40.62. Mrs Tierney said that the competency tests are one in a series of indicators of an expert's competency. If an examiner failed to achieve the required standard on a particular test date that would not automatically suggest that all their work was

95 FI_0152 para 19 Inquiry Witness Statement of Mrs Tierney
96 Mr Wertheim 22 September pages 17-18
97 See chapters 35 and 38
98 Mrs Tierney 12 November pages 146-150
99 See chapter 38 para 47ff
100 SG_0375 para 8.9.1

subject to question or review. It would mean that on that particular date they failed to arrive at the consistent results.

40.63. She considered that to issue guidance on the implications of failing to pass a competency test would not be helpful. It could elevate the importance of passing the test. If an examiner repeatedly failed to achieve the required standard in the competency test that would be a flag to question how they were going about their job. The matter would be measured and monitored as a performance issue in the same way as if dip sampling showed up a failure to achieve the desired results.[101]

40.64. Mrs Tierney had experience of dealing with failure in a test. She had a conversation with the individual and explored the reasons for the particular problem. The discussion was recorded. An administrative and clerical error had led to the problem. One could not write such errors off and had such an error occurred in a case report it could have had significance. Accordingly some previous work of the individual was reviewed. Mrs Tierney satisfied herself that administrative errors were not occurring in the casework and that there was no significant area of concern.[102]

40.65. If it became apparent that an examiner was persistently missing identifications as a result of the dip sampling, that would be a performance issue. The first step would be to find out if there were circumstances that might be leading that individual to make mistakes. There might be extenuating circumstances affecting their concentration at work. Mrs Tierney would hope that an SPSA office would not view performance review as a negative but as a positive to find out how SPSA could help support an examiner's competence and develop the individual.[103]

40.66. Performance issues would be managed locally and involve development plans, setting objectives and monitoring. Mrs Tierney said that if an examiner made an erroneous identification a development plan for the training of the individual would be required. That might also be required in the case of an examiner who persistently missed identifications. The unit manager has responsibility for monitoring the performance of staff, identifying any areas of concern, and putting together a corrective action and development plan to develop the competency of that particular individual.[104]

40.67. Mr McGinnies also spoke in terms of these being 'line management' issues, with SPSA taking appropriate steps to ensure that the issues were addressed, such as removing the person from fingerprint duties or ensuring that all their work was checked and/or providing refresher training.[105] The examiner would be monitored and more stringent dip sampling would be introduced.[106] A failure at competency testing might necessitate further training. If there was a misidentification then the examiner would have their work dip sampled or all their work checked for the period before and after the misidentification. A progress report from Mr McGinnies, the examiner's line manager and probably their supervisor would have to go to

101 Mrs Tierney 12 November pages 155-156
102 Mrs Tierney 12 November page 157
103 Mrs Tierney 12 November pages 148-149
104 Mrs Tierney 12 November pages 146-147
105 FI_0193 para 135 Inquiry Witness Statement of Mr McGinnies
106 Mr McGinnies 4 November page 99

the unit manager to say that the corrective measures/the training plan had been completed and the examiner was 'back on track'. This had occurred.[107]

40.68. Mr Nelson confirmed that if marks in the test were not identified by an individual, this would be addressed by the line manager on an individual basis. How this was done would depend on the circumstances. It might be an issue of training or another competence issue. There were no specific procedures which would be followed. Whether an individual would be permitted to continue to practise following the failure of a test would be assessed on an individual basis, depending on the nature of the inadequacies.[108]

40.69. In noting that there was no complete policy as to what happened when a fingerprint examiner failed a competency test, Mr Nelson agreed that there was room for a policy that distinguished between different types of error e.g. an occasional error and consistent error.[109]

40.70. At the Metropolitan Police, technical errors (comparison miss, wrong identification and administrative wrong identification) are dealt with in accordance with a procedure. These must be reported to a senior manager. An agreed action plan would follow. The examiner in question would have to complete a work-based sample successfully before resuming work.[110]

Disclosure

40.71. Mrs Tierney indicated that if someone failed a competency test this information would not be provided to COPFS. Provided she was satisfied that the examiner was competent to perform their job she would not see a need to disclose it. She assesses her staff, and accepts that she is responsible for their competency and if she allows them to work on live case work they are competent to do the job.[111]

40.72. Mr Nelson recognised that the fact that people undergo competency testing is relied upon to reinforce their expertise in the criminal courts. Accordingly if there was a real difficulty this is something of which the Crown should be made aware. If Mr Nelson had any concerns about anyone working in SPSA he would tell COPFS.[112]

40.73. Mr Pattison said that the Law Officers would wish to be assured that there was regular competency testing, verification and training. There would be an interest in being assured that the processes were sufficiently robust in relation to training and the assessment of competency.[113]

Commentary

40.74. HMICS had noted in its 2000 report that there was a "growing acceptance" that a 'time based' measure of experience and skills level was not the appropriate criterion for acceptance of a fingerprint expert. Some trainee fingerprint officers

107 Mr McGinnies 4 November pages 100-101
108 FI_0153 para 91 Inquiry Witness Statement of Mr Nelson
109 Mr Nelson 13 November page 28
110 MP_0008 paras 4.9-4.10
111 Mrs Tierney 12 November page 37
112 Mr Nelson 13 November pages 28-29
113 Mr Pattison 13 November page 152

were competent to perform the role of expert much earlier.[114] It supported a move towards a competency-based standard for expert qualification and recommended early progress towards this goal.[115]

40.75. It is evident that progress has been made.

40.76. SPSA has in place a range of systems and processes to ensure that trainees are appropriately trained and qualified examiners are kept up to date with refresher training. It is also clear that it has a number of processes to ensure that examiners maintain standards of competence. SPSA is seeking ISO accreditation and pursuing external dip sampling, which is important as it ensures there is external oversight of its systems and processes in respect of such matters.

40.77. SPSA is developing its arrangements for the on-going training and development of qualified examiners. Attendance at external conferences and courses is important as it helps ensure examiners are exposed to practices that may be different to those applied at their respective bureaux and to developments in their discipline. Although there is an annual review process, there is no mandatory requirement, as there is in various professions, for qualified fingerprint examiners to attend a certain amount of training about their core skills each year.

40.78. A number of measures are in place to monitor the continued competency of individual examiners.

40.79. The HMICS recommendation that there be an externally validated common procedure to address failure in the course of competency testing has not been completed, although there appeared to be a clear understanding in SPSA as to how performance issues would be addressed, whether they arose through the competency testing or other means such as from the dip sampling or verification processes. Neither is there a policy that, for example, distinguishes between different types of errors nor any policy on disclosure of competency related matters to Crown Office.

40.80. Improvements in the arrangements for training and monitoring of fingerprint practitioners have, however, to be seen in the context of the need for the technique of fingerprint comparison work itself to be the subject of research and monitoring. Practitioners are no more reliable than the technique that they apply and the Forensic Science Regulator identified the need for regulation of forensic science techniques as well as regulation of providers and practitioners.[116] The theme running through this Part of the Report has been that there is limited understanding of the limitations of the technique of fingerprint comparison work and, consequently, the limits of performance of practitioners are uncertain. The need to view training and performance management in the wider context of a proper understanding of the foundations of the technique is stressed by the National Academy of Sciences:

> "Forensic examiners must understand the principles, practices, and context of science, including the scientific method. Training should move away from reliance on the apprentice-like transmittal of practices to education at the

114 SG_0375 para 3.5.3
115 SG_0375 recommendation 5
116 See chapter 34 para 15

> college level and beyond that is based in scientifically valid principles….For example, in addition to learning a particular methodology through a lengthy apprenticeship or workshop during which a trainee discerns and learns to copy the skills of an experienced examiner, the junior person should learn what to measure, the associated population statistics (if appropriate), biases and errors to avoid, other threats to the validity of the evidence, how to calculate the probability that a conclusion is valid, and how to document and report the analysis. Among many skills, forensic science education and training must provide the tools needed to understand the probabilities and the limits of decision making under conditions of uncertainty."[117]

40.81. I have recommended further research and also engagement with members of the academic community working in the field.[118] Those recommendations are of equal relevance to (a) the rigorous validation and improvement of the techniques common to all practitioners and (b) the monitoring of the performance of individual practitioners in the application of those techniques.

40.82. The Inquiry heard evidence about the appropriate regulatory structure for fingerprint work. It is important to bear in mind that there is no such thing as a perfect regulatory structure. No system of external regulation can guarantee that an organisation or an individual practitioner is meeting the requisite standards of competence and reliability and that such standards will continue to be met. The responsibility for ensuring that such standards are achieved rests always with the individual examiners and their managers, who should be mindful of the onerous duties of experts.

Recognition as a fingerprint 'expert'

40.83. The National Academy of Sciences, writing in the context of the USA, recommended that: "Laboratory accreditation and individual certification of forensic science professionals should be mandatory, and all forensic science professionals should have access to a certification process. In determining appropriate standards for accreditation and certification, the National Institute of Forensic Science (NIPS) should take into account established and recognized international standards, such as those published by the International Organization for Standardization (ISO). No person (public or private) should be allowed to practice in a forensic science discipline or testify as a forensic science professional without certification. Certification requirements should include, at a minimum, written examinations, supervised practice, proficiency testing, continuing education, recertification procedures, adherence to a code of ethics, and effective disciplinary procedures. All laboratories and facilities (public or private) should be accredited, and all forensic science professionals should be certified, when eligible, within a time period established by NIPS."[119]

40.84. Training of fingerprint examiners has already been described. Mr McGinnies explained that if a trainee passes all of the assessments he or she is eligible to be considered for full qualification as a fingerprint expert. The final decision is taken

117 NAS Strengthening Forensic Science in the United States: A Path Forward, 2009, page 217
118 See chapter 35
119 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, page 215

by SPSA having assessed whether the trainee has reached the required level of competence or requires further time as a trainee.[120]

40.85. Currently in Scotland 'certification' of fingerprint examiners consists of registration on the National Register of Fingerprint Experts held by the NPIA at Durham and authorisation by the Scottish Ministers under section 280 of the Criminal Procedure (Scotland) Act 1995 for the purpose of making joint reports. Neither entails any external scrutiny of qualifications or competence, the applications being made when SPSA is satisfied that the trainee has reached the requisite level of competence.[121]

The National Register of Fingerprint Experts

40.86. There is no formal process for re-assessment of experts registered on the National Register. As an example, an examiner is not re-assessed on a five yearly basis.[122]

40.87. Mr McGinnies told the Inquiry that if a fingerprint examiner had not acted as such for a long time, for example as a result of a career break or a period in other employment, the examiner must pass the advanced course at the NPIA before recommencing work. If an examiner left the employment of the SPSA, whether by reason of lack of competence or otherwise, or ceased to be a fingerprint examiner then SPSA would write to the NPIA and the register would be updated.[123]

Authorisation by Scottish Ministers

40.88. Section 280(4) of the Criminal Procedure (Scotland) Act 1995 makes provision for the authorisation of 'forensic scientists'. Fingerprint examination is only one of the forensic science disciplines covered by the provision.[124] The significance of "authorisation" is limited. It allows evidence to be admitted by way of a written report prepared by the authorised forensic scientists without the scientists being required to give evidence in person, provided the report is served on the other party timeously and is not challenged. It does not certify that the forensic scientists are 'expert witnesses'. In every case where an expert witness gives evidence in court his or her qualifications and expertise have to be established by oral evidence to the satisfaction of the court.[125]

40.89. Authorisation under section 280 is a matter for the Scottish Ministers and is handled by officials of the Scottish Government.[126] COPFS has no involvement.[127]

40.90. Mr Christie Smith, Deputy Director of the then Police Division in the Police and Community Safety Directorate, explained the process.[128] Criteria are specified for 'authorisation', which vary depending on the discipline involved. They were established in 1993 by the Scottish Forensic Science Liaison Group, which comprised the directors of the four forensic laboratories (prior to the establishment of the Forensic Service at the SPSA) and the head of Northern Ireland's forensic

120 FI_0193 para 91 Inquiry Witness Statement of Mr McGinnies
121 Mr McGinnies 4 November page 104
122 FI_0193 para 132 Inquiry Witness Statement of Mr McGinnies
123 FI_0193 paras 130-131, 136 Inquiry Witness Statement of Mr McGinnies
124 FI_0116 pdf pages 1-2 Inquiry Witness Statement of Mr Smith
125 FI_0114 para 67 Inquiry Witness Statement of Mr Pattison
126 FI_0114 para 66 Inquiry Witness Statement of Mr Pattison
127 FI_0114 para 67 Inquiry Witness Statement of Mr Pattison
128 FI_0116 Inquiry Witness Statement of Mr Smith

laboratory, and other interested parties (including COPFS) were consulted. For fingerprint examiners the criteria are expressed in these terms: "Successful completion of the advanced fingerprint course at the National Training Centre at Durham. All existing trainees should complete as many courses at Durham as possible."[129]

40.91. The head of section or equivalent for the organisation requesting authorisation must submit written confirmation that the forensic scientist for whom they are seeking authorisation meets the relevant criteria. Mr Nelson confirmed that at SPSA it is left to him and the relevant unit managers to assess whether any particular individual has reached the requisite level of competence.[130] Neither Scottish Ministers nor Scottish Government officials directly assess the competence of forensic scientists. Using the information supplied by the organisation officials check that the forensic scientist meets the criteria. There is no interview. A record of authorised forensic scientists is maintained on an electronic database.[131]

40.92. It is requesting organisations that are responsible for ensuring that their staff are skilled and competent to carry out their work, and that the identification and verification procedures that apply to them are effective in underpinning that skill and competence.[132] Authorisation is not time-limited. The authorisation process relies on the requesting organisation ensuring that its forensic scientist is suitably qualified and skilled. Should an organisation decide that an individual is no longer suitable to be authorised, the responsibility lies with the organisation to ensure that the individual ceases to sign forensic reports for use in court. The Scottish Government would expect to be informed of this decision so that the records could be amended.[133]

Commentary: accreditation and authorisation of examiners

40.93. HMICS in 2000 recommended that a review take place of authorisation under section 280. At that time 'authorisation' depended only on a criterion of time served (five years) in training. HMICS recommended a competency based qualification for expert status[134] and that has been achieved through the foundation degree.

40.94. More generally, HMICS recommended that the concept of 'authorisation' needed further consideration.[135] It questioned "the true value" of the section 280 authorisation process. The report noted: "It would also appear that 'authorisation' is a formality providing that the expert meets the set criteria… these criteria can be changed to suit the organisation to which the expert belongs which detracts from any notion that the candidate's competency or eligibility for expert status is being subject to any independent scrutiny."[136]

40.95. The initial qualification for 'authorisation' has moved on to the extent that it is now based on competence (the foundation degree) and not simply time served.

129 FI_0116 pdf page 2 Inquiry Witness Statement of Mr Smith
130 Mr Nelson 13 November page 25
131 FI_0116 pdf page 3 Inquiry Witness Statement of Mr Smith
132 FI_0116 pdf page 3 Inquiry Witness Statement of Mr Smith
133 FI_0116 pdf page 4 Inquiry Witness Statement of Mr Smith
134 SG_0375 para 8.11.5 recommendation 21
135 SG_0375 para 3.5.5 recommendation 6
136 SG_0375 para 3.5.4

However, there remains no independent assessment by Scottish Ministers at the date of application and no mechanism to assess continuing competence thereafter. There is no meaningful content to the checks undertaken by Scottish Ministers to warrant concluding that the forensic scientist is 'authorised' by them. The reality is that the forensic scientist is authorised by his or her employer, in the case of fingerprint examiners that now being SPSA. I endorse HMICS's conclusion that the concept of 'authorisation' requires review.

40.96. With the demise of the CRFP there is no external agency able to validate the continuing competence of fingerprint examiners.[137] This brings into sharp relief the issue concerning the appropriate model of accreditation. The emerging policy favouring accreditation at the institutional level[138] is consistent with current practice in relation to authorisation under section 280 because responsibility for assessing continuing competence effectively rests with SPSA. That should be the model for section 280. If, as would appear to be the case, section 280 operates effectively on the basis that reports will be accepted from whomsoever SPSA, acting reasonably, judges to be suitably competent, then the section should say so and should not impress with the imprimatur of Scottish Ministers those whom SPSA nominate.

40.97. A separate question arises as to the suitable standard for accreditation of SPSA. There is a consensus that ISO 17025 is currently the most appropriate quality standard for fingerprint examination but it has its limitations and a need has been identified for more specific standards. The regime for accreditation will require to be kept under review.

40.98. If the recommendation that accreditation of fingerprint examiners should be regulated through accreditation of SPSA is accepted it is doubtful that any purpose would be served by registration on the National Register of Fingerprint Experts, particularly given the current absence of any system for review of registration. Adjusting the registration arrangements to include a review mechanism would probably only duplicate the arrangements to be expected in a proper system for accreditation of SPSA but so long as registration is retained arrangements should be made to ensure that it reflects current competence.

40.99. The question of the appropriate model for accreditation or authorisation of other forensic scientists covered by section 280, some of whom may be employed in university laboratories and laboratories in private ownership, lies outside the terms of reference of this Inquiry but will have to be considered in the context of review of 'authorisation' under section 280.

Competence to give expert evidence

40.100. As noted, authorisation under section 280 is not intended to certify any forensic scientist as an 'expert' witness. Whether or not a witness qualifies to be regarded as an 'expert' in relation to any particular issue is a matter for the court in light of the principles summarised in chapter 30.

137 Mr Nelson 13 November page 22ff
138 See para 28 above

40.101. Two particular issues arose in the Inquiry. The first concerned the approach to witnesses from outside the UK. The second concerned the contribution that could be made by academics.

Fingerprint examiners qualified outside the UK

40.102. The approach to fingerprint examiners with qualifications gained outside the UK was an issue in the background to the Court of Appeal case *R v Peter Kenneth Smith*.[139] The defence had intended to lead evidence from a fingerprint examiner who had a qualification from the USA but did not call her because the prosecution indicated that they would cross-examine her on the basis that her qualification was not recognised in the UK. The Court of Appeal did not reach any conclusion on that witness. One of the issues that the Court of Appeal raised was the inability of fingerprint examiners working outside police bureaux to become fully qualified in England and Wales, a matter that may impact on the availability of suitable 'experts' to be instructed by the defence.

40.103. Fingerprint comparison work is a truly international discipline. Countries do differ in relation to the standards applied to an identification. Some, like the UK jurisdictions, apply a non-numeric approach, while others continue to apply numeric standards with a variety of minima. That said, the underlying science and the principles applied are the same.

40.104. The Inquiry had the benefit of the assistance of Mr Wertheim (an American examiner who operates on a non-numeric basis) and Mr Zeelenberg (a Dutch examiner who practises by reference to a numeric standard). Incidental issues were raised concerning the reliability of their evidence. For example, the SCRO core participants criticised Mr Wertheim for raising doubts about the mark XF. As for Mr Zeelenberg, he was criticised by the same parties for his remarks to Mr Mackenzie and Mr Dunbar during and after the meeting at Tulliallan. Those matters have already been addressed elsewhere in this Report and were collateral to the debate concerning the interpretation of the marks Y7 and QI2 Ross. In addition, the reliability of Mr Zeelenberg was questioned, for example by Ms McBride, on the basis that the Dutch fingerprint examiners were said to have performed relatively poorly in the study conducted by Evett and Williams,[140] the inference being that they were too conservative and would dismiss marks as fragmentary and insufficient that were 'truly' of comparable quality. I have no hesitation in accepting that all of the witnesses who participated were duly qualified, despite the transnational nature of their qualifications, and that they demonstrated expertise informed by study and practice sufficient to qualify them as 'experts'. There were benefits in their contrasting presentational styles and as for the suggestion that some may have been too conservative, it has to be recalled that a critical issue with complex marks such as Y7 and QI2 Ross is whether examiners are applying an inappropriate degree of tolerance in declaring a match between ridge characteristics that have some difference in appearance or location. There is no standard by which to measure an 'acceptable' degree of tolerance and in that situation there is merit in hearing a spread of views. That is what the Inquiry had available to it as a result of the extensive debate among the various witnesses who were heard in oral evidence and who contributed to the comparative exercise.

139 [2011] EWCA Crim 1296, paras 61-62
140 FI_0039 paras 145, 147 Inquiry Witness Statement of Ms McBride

40.105. The base qualification in the UK is passing the foundation degree but there is nothing to suggest that there is something unique to that course to support the conclusion that only examiners who have completed it can be recognised as an 'expert' in a Scottish court. Provided they can satisfy the court as to their expertise, there is no objection in principle to examiners with qualifications from outside the UK giving evidence in a Scottish court.

Fingerprint evidence from witnesses who are not qualified fingerprint examiners

40.106. The second issue was the suggestion, advanced in particular by Mr Russell on behalf of the core participants that he represented, that fingerprint evidence should only come from those who practise fingerprint comparison work on a daily basis and, in particular, should not come from academics.[141]

40.107. There is no reason to suppose that fingerprint evidence can only come from an examiner engaged in daily examination of prints.

40.108. One has to start by identifying the issue to which the evidence relates. The Inquiry was greatly assisted by Dr Bleay, a scientist at the Home Office Scientific Development Branch, particularly with reference to the authenticity of the mark XF[142] and the question whether Y7 may have been placed on the door-frame after the dusting with aluminium powder.[143] There is no doubt that Dr Bleay can be regarded as an 'expert witness' and that the evidence that he gave was of relevance to those two matters, the first of which might otherwise be thought to fall within the domain of the fingerprint examiner.

40.109. The Inquiry has also heard evidence that image quality is relevant to the reliability of fingerprint evidence. Mr Kent is a retired scientist and formerly a member of the Home Office Police Scientific Development Branch.[144] He has extensive experience of the application of technology to various aspects of fingerprinting and conducted a study into the relevance of digital image quality to the interpretation of fingerprints.[145] He had been instructed by the Crown for the Asbury trial and in that context he examined the door-frame on which Y7 was deposited and photographed the mark.[146] One of the matters on which he was asked to comment during the Inquiry, and on which he did comment with diffidence noting that he was not qualified to express an opinion on whether marks were identical or not, was whether one of the images of Y7 on which Mr Swann had charted matching characteristics – an image taken by Mr Kent himself – was of sufficient quality to admit of reliable interpretation of detail observed on the periphery of the mark.[147] That evidence arises at the interface between an issue relating to technology (the quality of a photographic image) and fingerprint opinion (the observation and interpretation of 'events' in an image). I have no doubt that Mr Kent could be regarded as an 'expert witness' in relation to that evidence. In any case on which a difference of opinion between two fingerprint examiners potentially turned on image

141 Preliminary hearing 21 November 2008 page 43ff
142 See chapter 27
143 See chapter 3 para 87ff
144 FI_0052 paras 1, 3 Inquiry Witness Statement of Mr Kent
145 FI_0052 para 49ff Inquiry Witness Statement of Mr Kent
146 FI_0052 para 19 Inquiry Witness Statement of Mr Kent
147 Mr Kent 7 July pages 105-108

quality I see no reason why a scientist who has studied image quality could not give relevant 'expert' evidence.

40.110. Mr Kent's evidence that he observed signs of movement in the mark Y7 has been taken into account in chapter 25[148] and is as deserving of attention as that of the fingerprint examiners who gave evidence.

40.111. More generally, comment has already been made on the need for fingerprint examiners to engage with members of the academic community working in the field and for further research, including scientific research.[149] Achievement of those objectives will require a contribution from academics working in the field. The work already done has cast light on the relevance of third level detail[150] and further work is to be expected on issues such as the incidence of specific ridge characteristics in different fingerprints, the impact of movement and to develop a statistical model to provide a basis for quantifying the probability of identity. These are all matters on which an academic could give relevant evidence as an 'expert'.

40.112. There is no reason to suppose that only a fingerprint examiner can give evidence bearing on the identification of a fingerprint mark. Close attention has to be given to the issue in dispute and the qualifications and expertise of the witness relative to that issue; and the question of admissibility of evidence from someone who is not a fingerprint examiner should be assessed with an open mind on the common law principles discussed in chapter 30.

Recommendations

Accreditation of bureaux in Scotland

40.113. The SPSA should continue to seek to obtain and retain the ISO 17025 external accreditation and such other accreditation as may become relevant in the field of fingerprint identification.

Performance management

40.114. The SPSA should introduce a requirement that fingerprint examiners have training and development in core fingerprint examiner skills each year.

40.115. The discussions about the possibility of having a national dip sampling regime should be pursued, as this would introduce an element of external validation. The proposal whereby some dip sampling will be carried out by SPSA personnel from other bureaux should be implemented in the interim.

40.116. The SPSA should develop a procedure for the provision of information to COPFS where issues have been raised about the performance of an examiner who may be required to report or give evidence. COPFS should provide SPSA with guidance as to the nature and extent of the information that should be provided in order to enable COPFS to comply with its duties of disclosure to the defence.

148 Para 185ff
149 See para 81 above
150 See chapter 35 para 101ff

Accreditation and authorisation of examiners

40.117. The system for authorisation under section 280 of the Criminal Procedure (Scotland) Act 1995, so far as relating to fingerprint examiners, requires review.

40.118. A system should be devised whereby any authorisation of fingerprint examiners under section 280 would be confined to the authorisation of individuals who are employed by an institution which has achieved appropriate accreditation. It would be for the Scottish Government to satisfy itself in the course of the review referred to in paragraph 117 as to what constitutes appropriate accreditation, and by whom that accreditation should be carried out.

40.119. The system of registration on the National Register of Fingerprint Experts should be reviewed. If it continues in use it should be revised to ensure that the criteria for registration and the records are kept up to date and that the records indicate competence. Should SPSA for any reason decide that an examiner is no longer competent to practise, it should notify the NPIA so that the examiner's name is removed from the register and also the Scottish Government so that authorisation under section 280 is withdrawn.

40.120. Absence of authorisation under the Act should not be taken as disqualifying a witness from being treated as an expert in relation to fingerprint evidence. The witness should be prepared to demonstrate his or her expert status on ordinary common law principles.

CHAPTER 41

RESEARCH AND THE ROLE OF STATISTICS

The need for research

41.1. A number of witnesses spoke of the requirement for further research.

41.2. Professor Champod said that there was a paucity of structured research into fingerprints probably because fingerprint comparison had been understood to be "a profession ruled by certainty". Appreciation that the process involved uncertainty with grey areas such as the impact of distortion and varied levels of tolerance necessitated research into all aspects relating to the interpretation of fingerprints.[1]

41.3. Mr Nelson agreed that more research is needed.[2] He acknowledged that a great deal more requires to be done in trying to understand phenomena such as double touch and movement and pressure.[3] Scientific research is required to provide proper standards for people operating the non-numeric approach in assessing, for example, quality of characteristics.[4]

41.4. Mr Rennison referred to a need to be clearer as to how the decision making processes work, including matters such as contextual bias,[5] and for research to underpin better interpretation models that allow professionals room to use their judgment, but within a very clear framework.[6]

41.5. The need for research was identified by the OIG in its report on the Mayfield case[7] and the June 2011 review provides an update on the research that has been undertaken. That includes research on the permanence and reproducibility of friction ridge detail (including third level detail) and research on the accuracy and consensus of decisions; and work is on-going to develop software to assist fingerprint examiners to assess the quality of marks and to measure the sufficiency of corresponding features to support a conclusion.[8]

41.6. It is appreciated that this Report is written at a time of economic uncertainty, and in circumstances where resources are limited in the public sector. Mr Nelson indicated that SPSA does not have a budget sufficient to fund all the necessary research.[9] Mr Nelson said that there was an opportunity for research in Scotland through the Scottish Institute of Policing Research developed by ACPOS and the

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1 Professor Champod 25 November pages 113-115
2 Mr Nelson 13 November pages 12-13 and FI_0153 para 95 Inquiry Witness Statement of Mr Nelson
3 Mr Nelson 13 November page 14
4 Mr Nelson 13 November pages 17-18
5 See chapter 35 para 111ff
6 Mr Rennison 8 July page 99
7 US Department of Justice, Office of the Inspector General (2006) Review of the FBI's Handling of the Brandon Mayfield Case (Unclassified and Redacted) (US Department of Justice) URL: http://www.justice.gov/oig/special/s0601/final.pdf, pdf pages 207-208
8 US Department of Justice, Office of the Inspector General (2011) A Review of the FBI's Progress in Responding to the Recommendations in the Office of the Inspector General Report on the Fingerprint Misidentification in the Brandon Mayfield Case, URL: http://www.latent-prints.com/images/FBI%20Mayfield%20Progress%20062011.pdf, pdf pages 19-21
9 Mr Nelson 13 November pages 16-17

Scottish universities[10] and the SPSA had signed a memorandum of understanding with Strathclyde University.[11] Within the UK Mr Rennison has already identified the lack of any coherent strategy and has made representations to the Home Office about this[12] and it is evident that areas of research identified by this Inquiry are similar to those identified in the United States for example by the OIG and others.[13] There is value in international co-operation in such research and sharing of results so as to avoid unnecessary duplication.

41.7. Research is not confined to the methodology of fingerprint comparison and decision making. There is a need to review the presentation of evidence in court, including, for example, trials of electronic methods of presentation.[14] The failure to use digital images was one of the criticisms made by the Court of Appeal in *R v Peter Kenneth Smith*.[15] Having seen electronic methods in use over many days of evidence at the Inquiry I would encourage work in this area.

The role of statistics

41.8. One particular research initiative merits more detailed discussion and that is the potential to apply statistics not only at the stage when an examiner is carrying out his comparison but also as a basis for presenting evidence in court.

41.9. Professor Champod and Mr Chamberlain argue that a probabilistic premise underlies the inferential judgment that the presence of a certain combination of features can justify a conclusion of 'uniqueness'.[16] The examiner is reasoning that the probability of finding the same combination of characteristics in any person other than the one being identified is zero.

41.10. In current practice the probabilistic premise can be said to be at most 'implicit' because it is not expressly stated by an examiner when expressing a conclusion and the examiner may be unaware that he is applying such reasoning.[17] Indeed, since examiners do not use statistics or any probability computation it may be misleading to characterise their conclusion as 'probabilistic'. It is more accurately described as an empirical, subjective judgment based on training and experience.[18] As Mr Pugh expressed it, examiners are using pattern recognition skills rather than thinking about probability.[19]

41.11. Examiners are using their training and experience to assess the rarity of the combination of characteristics but there is scope for differences in opinion in part because of differing levels of experience. One examiner may treat a combination of

10 Mr Nelson 13 November pages 12-13 and FI_0153 para 95 Inquiry Witness Statement of Mr Nelson
11 Mr Nelson 13 November page 18
12 Mr Rennison 8 July pages 96-97; see chapter 40 para 26
13 Committee on Identifying the Needs of the Forensic Sciences Community, Committee on Science, Technology and Law Policy and Global Affairs, Committee on Applied and Theoretical Statistics Division on Engineering and Physical Sciences, National Research Council. Strengthening Forensic Science in the United States: A Path Forward, Washington, D.C.: National Academies Press, 2009, page 8
14 Mr Rennison 8 July pages 95-96
15 [2011] EWCA Crim 1296, para 61(viii)
16 See Champod C. and Chamberlain P. Fingerprint, in: Fraser J. and Williams R. (eds) Handbook of Forensic Science, Willan Publishing, 2009, page 69
17 Professor Champod 25 November page 83
18 See chapters 33 para 49 and 35 para 100
19 Mr Pugh 24 November page 26

characteristics as rare, as he may seldom have come across such a combination. Another examiner may have come across such a combination more often. Examiners presently have insufficient objective evidence by which decisions as to the rarity of characteristics are assessed, and to the extent that such data is available, it is not utilised by examiners. The National Academy of Sciences has noted: "In most forensic science disciplines, no studies have been conducted of large populations to establish the uniqueness of marks or features. Yet, despite the lack of a statistical foundation, examiners make probabilistic claims based on their experience. A statistical framework that allows quantification of these claims is greatly needed."[20]

41.12. Mr Pugh and Miss Hall suggested that there might be a role to use statistical frequencies or evaluation to supplement or support the opinion of the fingerprint examiner and even to help them arrive at the conclusion.[21] Use of statistics could also provide an objective measure to enable the court or the jury to understand the examiner's intuition or experience that a particular characteristic or coincident sequence was rare.[22]

41.13. Some statistical data is already available on the prevalence of level 1 features and level 2 characteristics.[23]

Probabilistic analysis

41.14. Mr Rennison found it odd that fingerprint examiners were expected to give an absolute yes or no answer and that there was no room for doubt. His view was the aim for the future should be to base opinions on probabilities. Probabilistic analysis works in other areas, such as DNA, and people had grown to understand it.[24]

41.15. In 1980 the International Association for Identification adopted a resolution stating that friction ridge identifications are positive and officially opposing evidence based on possible, probable or likely identifications.[25] In 2010 the Association passed a resolution laying a foundation for validated mathematical models to be used to support an examiner's opinion but not as the sole determinant of identity.[26]

41.16. Probabilistic models for fingerprint work were, at the time of the Inquiry hearings, under development[27] and one developed by FSS was in the process of validation.[28] Probabilistic analysis expresses the chance that a mark may have been left by a person.[29]

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20 NAS, Strengthening Forensic Science in the United States: A Path Forward, 2009, pages 188-189
21 Mr Pugh, Miss Hall 24 November pages 120-121
22 Miss Hall 24 November page 121
23 ED_0003 para 48ff
24 Mr Rennison 8 July pages 112-113
25 Professor Champod 25 November page 77
26 IAI (2010) IAI Resolution 2010-18 Passed 16 July 2010 URL: http://swgfast.org/Resources/100716_IAI_Resolution_2010-18.pdf
27 See for example EC_0001 pages 19-20, Professor Champod 25 November pages 91-92 and ED_0005 slide 75
28 FI_0136 paras 57-59 Inquiry Witness Statement of Mr Chamberlain and EC_0001 page 23
29 Mr Chamberlain 18 November page 74

41.17. Professor Champod explained how probabilistic models work in fingerprints in his report to the Inquiry[30] and in his oral evidence. The models invite consideration of two specific questions:

(i) the probability of observing the degree of similarity (or dissimilarity) between two impressions if they come from the same source; and

(ii) the probability of observing this degree of similarity (or dissimilarity) if the two impressions come from different sources.[31]

The ratio between the two probabilities is the likelihood ratio.

41.18. To answer question (i), the model has to encapsulate knowledge about distortion, to account for the possibility that the mark may be distorted, smudged, or moved. To answer question (ii), a database of prints taken from different people is required, as a response to this question is obtained from the statistical analysis of the distribution of characteristics on fingers coming from different sources.[32]

41.19. The likelihood ratio does not allow an expert to say either by absolute terms or by degree whether the mark was left by a specific person.[33] It does, though, enable him to assign a weight to his conclusion.[34] Mr Chamberlain indicated that the likelihood ratio is derived from the precise configuration of characteristics. The likelihood ratio for different configurations of the same number of characteristics varies because one configuration may be less common than the other.[35]

41.20. Probabilistic modelling has its limitations. Professor Champod, an advocate for more statistical input to fingerprint decision making, cautions that statistical modelling is not the holy grail.[36] It will not eliminate the role of the examiner: "the extraordinary power of the human eye-brain combination has to be recognised and examiners will remain best placed for designating the features available on a mark."[37]

41.21. The model is dependent on the inputs by the examiner who must designate respectively on the mark and on the print the features that he considers to be in agreement. The model does not extract these automatically[38] nor does it pick up differences that the examiner may have overlooked. The model generally assumes the truth of the existence of the input data and will not detect errors of observation, hence Professor Champod stressed that the model will not replace a proper application of ACE-V.[39] Professor Champod provided an illustration of the dependence of the model on the skill and judgment of the examiner under reference to a specific mark and print.[40] If an examiner were to conclude that there were ten points in agreement in that example the model would produce a

30 ED_0003 para 72ff
31 Professor Champod 25 November page 88
32 Professor Champod 25 November pages 89-91 and ED_0003
33 Professor Champod 25 November pages 88-89
34 ED_0003 para 79
35 FI_0136 para 53 Inquiry Witness Statement of Mr Chamberlain
36 Professor Champod 25 November page 94
37 ED_0003 para 79
38 ED_0003 paras 86, 93
39 ED_0003 para 93
40 ED_0005 slides 77-79

likelihood ratio in the order of 300,000, which would be "very powerful evidence to support the view that the mark has been left by the same person as the person who produced the print." If a second examiner were to conclude that there were only five points in agreement in the same example the likelihood ratio would fall to an estimated five, which would provide "some evidence" but of quite a different degree.[41]

41.22. The Metropolitan Police expressed some scepticism as to the value of such models. All proposed models that use a biometric system are not as accurate as adequately trained examiners.[42] They cannot assess marks holistically like the human brain.[43]

41.23. The use of these models could potentially achieve two different objectives. The first is to move decision making away from arbitrary, personal thresholds to a "statistical data driven approach". The second is to give the opportunity to introduce more fingerprint evidence by placing some evidential value on marks that are currently classed as inconclusive, insufficient or 'no value', including marks with a relatively low number of features.[44] Different considerations apply to these two objectives.

41.24. The underlying studies to gain knowledge about distortion and the distribution of characteristics on fingers coming from different sources could bring a layer of systematic study to guide examiners' decision making and give them back-up data to suggest how rare a configuration may be.[45] By providing statistical data probabilistic analysis could also provide the basis for moving away from personal experience based thresholds[46] and provide a mathematical measure of weight as an additional piece of information to be used in the evaluation stage by the examiner[47] and in due course by the court or jury.

41.25. The second objective reflects the suspicion that some potentially useful evidence either for court or police intelligence[48] may be being lost under the current system[49] but the Metropolitan Police expressed doubt whether any substantial volume of useful evidence is being lost and supported the call for research in this area.[50]

41.26. The models can be applied to marks with a number of minutiae (i.e. level 2 characteristics) as low as three[51] but the Metropolitan Police were concerned that the results in cases which examiners currently consider to be inconclusive could be potentially misleading and this needed careful consideration.[52] As Mr Pugh

41 Professor Champod 25 November pages 92-94
42 MP_0008 pdf pages 31-32
43 Mr Pugh 24 November page 111
44 FI_0136 para 55 Inquiry Witness Statement of Mr Chamberlain, Professor Champod 25 November pages 94-95 and ED_0005 slide 80
45 Professor Champod 25 November page 94
46 FI_0136 para 55 Inquiry Witness Statement of Mr Chamberlain
47 Mr Chamberlain 18 November pages 68-69
48 Mr Chamberlain 18 November page 71
49 Mr Rennison 8 July pages 112-113 and Professor Champod in ED_0003 para 28
50 MP_0008 pdf pages 32-33 and Mr Pugh 24 November page 115
51 Mr Chamberlain 18 November page 71; Neumann et al, 'Computation of likelihood rations in fingerprint identification for configurations of three minutiae', Journal of Forensic Science, November 2006, 51:1255; and Neumann et al, 'Computation of likelihood rations in fingerprint identification for configurations of any number of minutiae', Journal of Forensic Science, January 2007, 52:54
52 MP_0008 pdf page 33

explained it, the concern is that a low number of characteristics might suggest a high probability of a match when a difference somewhere else in the mark means that it is actually an exclusion.[53]

41.27. This problem is most acute when the mark is a relatively small part of the print, the concern being that the part reproduced in the mark may contain the similarities with the differences, lying in some other area, not being reproduced. That scenario in fact puts to the test the second premise of (conventional, as opposed to probabilistic) friction ridge identification as presented by Ashbaugh, which includes the proposition that: "...friction ridges are unique in a very small area due to the shape, alignment, and relative pore location of the connected ridge units."[54]

41.28. That prompts the question: how small an area can produce a reliable identification? Reference to Ashbaugh's book does not supply an answer beyond indicating that it depends on the clarity of the mark: "... when discussing the friction skin, it can be said that the friction skin is unique in a very small area. This statement, however, only applies to a friction skin print if clarity is present. When clarity is absent it may be an incorrect statement."[55] Later he states: "clarity may also affect the size of the area of friction ridges required to individualize."[56] No finite answer can be given relative to conventional fingerprint identification, it being yet another matter calling for the subjective judgment of examiners. Those who are developing probabilistic modelling are conducting research on the point. The application of likelihood ratios to partial prints is being studied by the University of Lausanne and the National Forensic Laboratory of the Netherlands.[57]

41.29. Mr Geddes referred to many instances worldwide where marks with clearly defined detail have been identified on as few as three or four characteristics in combination with level 3 detail such as pores and the width of ridges.[58] Neither the fact that probabilistic analysis may be based on only a small part of a print, nor that it may utilise as few as three level 2 characteristics is a point of distinction between conventional fingerprint identification and probabilistic analysis. In each case, of course, the critical question is the reliability of the method as applied in the comparison being undertaken. In the case of probabilistic modelling that will doubtless be an issue to be considered in the validation of the method.

Commentary

41.30. Research into the statistical basis for fingerprint identification is to be encouraged. Probabilistic analysis should also continue to be developed.

41.31. The more controversial issue relates to the application of statistics in general and probabilistic analysis in particular. Probabilistic analysis could be used in one of two ways.

53 Mr Pugh 24 November pages 112-113

54 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology. Boca Raton, Florida: CRC Press, 1999, page 92 (in Ashbaugh this is referred to as the third premise, in this Report it is the second: see chapter 2 paras 8-10; see also Wentworth, B. and Wilder, H.H. Personal Identification: methods for the identification of individuals, living or dead, T.G. Cooke (2nd Edition) 1932, page 325 and Mr Dunbar in CO_0050 page 2

55 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 93

56 Ashbaugh D. Quantitative-Qualitative Friction Ridge Analysis, 1999, page 94 and see also page 131

57 Professor Champod 25 November page 91

58 Mr Geddes 26 June page 126

41.32. The first would be to provide background data to assist fingerprint examiners with their evaluation of marks and to enable them to express the strength of their conclusion in a transparent and verifiable manner. The conclusion on identity or exclusion would continue to be based on the skill and experience of the examiner but at least the examiner would be able to call upon the support of statistics to aid verification of the conclusion and assist with the articulation of reasons in support of it.[59]

41.33. The second use would be the possible application of probabilistic analysis to comparisons that examiners would otherwise consider to be inconclusive, the objective being to produce evidence that could be used in court of the probability of a match. The reliability of the use of probabilistic modelling in this second way requires careful validation.

41.34. The limitations of statistics and probability models must be appreciated. As Professor Champod said, they are not the holy grail. The output of the mathematical models is no more reliable than the inputs and there is force in the observation by Mr Pugh that applied to complex marks with very few features probabilistic modelling could produce a "veneer of robustness": for example, supporting an identification which ought properly to be an exclusion if account is taken of differences overlooked by the examiner.[60] The evidence heard by the Inquiry demonstrates that there is variability amongst examiners regarding the inputs (i.e. variability as to both the observation and the interpretation of characteristics) and that will have a bearing on the 'accuracy' of the statistical output. The errors made in Y7 and QI2 Ross related to the finding of a minimum of 16 'matching' points identified by the SCRO examiners and the failure to provide a cogent explanation for differences. Those errors would not have been picked up by the application of probabilistic analysis and, indeed, the application of that analysis may have exacerbated the problem because the presentation of the result in terms of a statistical likelihood ratio would have cloaked the evidence in the veneer of scientific accuracy. Probabilistic modelling requires proper controls as to the inputs, including strict adherence to ACE-V methodology,[61] with particular emphasis on the enhanced verification of complex marks (i.e. a technical review) to select the points on which the examiners have reached consensus.[62]

Awareness of significant developments in fingerprint law and practice

41.35. In chapter 38[63] it has already been observed that lessons can be learned from cases of mistaken identification.

41.36. In 1998, prior to the trial in *HMA v McKie*, Mr Dunbar and Mr Mackenzie had had experience in the McNamee case of the possibility of differences of opinion among fingerprint examiners resulting in a court being unable to reaching a safe conclusion on identification. Experience in the McNamee case should have led to an appreciation that an examiner cannot be 100% certain that another competent examiner comparing the same impressions will necessarily come to the same

59 Mr Pugh, Miss Hall 24 November pages 120-121
60 Mr Pugh 24 November pages 113-114
61 Mr Chamberlain 18 November pages 82-83
62 Professor Champod 25 November page 92; and chapter 39 para 14ff
63 See chapter 38 para 54

conclusion; and, accordingly, the SCRO examiners would require to prepare in detail to justify their conclusion on Y7 when it was challenged. When the existence of a defence challenge to the identification of Y7 was made known to Mr Stewart he sought guidance within SCRO but due to a combination of circumstances he received none and the SCRO examiners were left to their own devices, as if the scenario were unique, which it was not.[64] It would appear that there had been no dissemination within SCRO of the experience of Mr Dunbar and Mr Mackenzie in the McNamee case or, in any event, lessons were not learned from that experience.

41.37. The Mayfield case also showed that '100% certainty' was unsustainable and offered insight into a number of weaknesses in fingerprint methodology at the time when Scotland was moving to the non-numeric system. Mr Innes, Head of the Scottish Fingerprint Service (the predecessor to SPSA) until April 2007, said that he distributed an article about the Mayfield case in 2005.[65] The OIG report is dated January 2006 and preceded the move to the non-numeric system in Scotland in September 2006.[66] It was not discussed between the Scottish Fingerprint Service and COPFS in the lead-up to that change and, indeed, Mrs Tierney was unaware of it until early 2007.[67] The findings of the OIG regarding deficiencies in the practices of the FBI were not being taken into account in formulating operating procedures for SPSA.[68] The Mayfield case had not been the subject of any detailed discussion by SPSA's Scientific Advisory Group.[69] Again the opportunity to learn lessons of relevance to practice in Scotland was missed.

41.38. From the evidence of Mrs Tierney and Mr Pattison, it appears that no-one in either SPSA or COPFS was tasked with maintaining awareness of cases or inquiries in which fingerprints were disputed or in which courts or investigating bodies made findings which might be relevant to the development of fingerprint practice.[70]

41.39. Investigation of 'erroneous' identifications may afford an insight into weaknesses in the methodology of fingerprint identification, and not just practitioner error. SPSA should monitor for reports of such investigations. This is an additional reason for maintaining close links with the academic community working in this field.[71]

41.40. It is understandable that COPFS should rely to some extent on SPSA, or in the past, its predecessor bodies, to advise on developments in the specialist fields for which they are responsible. However, COPFS has historically taken a legitimate interest in the reliability of fingerprint evidence and for the future I would expect not only SPSA but also COPFS to take note of decided cases (such as McNamee) or official reports (such as the OIG report) that have relevance to the presentation of fingerprint evidence in court.

64 See chapter 11 para 90
65 FI_2410 paras 100, 103 Inquiry Witness Statement of Mr Innes
66 See chapter 33 paras 35 and 59
67 Mrs Tierney 12 November pages 51-52, Mr Pattison 13 November pages 156-158 and CO_4428 pdf pages 3-4
68 Mrs Tierney 12 November pages 80-104
69 Mrs Tierney 12 November page 55
70 Mr Pattison 13 November pages 156-158
71 See chapter 35 para 129

Recommendations

Research and development

41.41. Requirements for research and development should be identified and collated and an appropriate scheme of research and development prepared by SPSA. Appropriate arrangements and funding (when available) should then be provided to enable research and development to take place on a UK basis and where appropriate through co-operation on an international basis.

41.42. Specific matters to be included in the scheme of research and development include:

(i) the matters covered by the recommendations that have been made in chapter 35 paragraph 134 and chapter 39 paragraph 23; and

(ii) the use of data as to the frequency of particular characteristics or combinations of characteristics as a means of assisting examiners in their work.

41.43. The use of probabilistic analysis should continue to be developed.

41.44. The SPSA should keep its practices under review in the light of developments in research.

Familiarity with developments and disputes in fingerprint law and practice

41.45. The SPSA should task identified staff with:

(i) maintaining up-to-date knowledge of cases, at least in anglophone jurisdictions, in which fingerprint evidence has been disputed; and

(ii) monitoring cases in which courts, inquiries or other investigating bodies have made significant criticism of existing fingerprint practice and of considering whether those criticisms should be taken into account in developing and improving fingerprint practice in Scotland.

Such staff should be tasked also with advising an identified contact in COPFS as to these matters.

41.46. COPFS should task identified staff with maintaining up-to-date knowledge of cases, at least in anglophone jurisdictions, in which fingerprint evidence has been disputed, and with liaising with an identified contact in SPSA in relation to any implications that the findings of such courts may have for fingerprint evidence in Scotland.

Part 8

Key Findings and Recommendations

Part 8

Key Findings and Recommendations

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CHAPTER 42

KEY FINDINGS AND KEY RECOMMENDATIONS

Key Findings

I made numerous findings in the course of the Inquiry, which are described in the text throughout this Report. The following statements are those which I consider my key findings.

1. There is no evidence other than the mark Y7 to suggest that Ms McKie at any time entered Miss Ross's house beyond the area of the porch.

2. The mark Y7 on the door-frame of the bathroom in Miss Ross's house was misidentified as the fingerprint of Ms McKie.

3. Ms McKie did not make the mark Y7.

4. There was no conspiracy against Ms McKie in Strathclyde Police and all reasonable steps were taken by that force to seek from SCRO confirmation of the identification of Y7.

5. The mark QI2 Ross was misidentified as the fingerprint of Miss Ross.

6. There was no impropriety on the part of any of the SCRO fingerprint examiners who misidentified the mark Y7 as having been made by Ms McKie or the mark QI2 Ross as having been made by Miss Ross. These were opinions genuinely held by them.

7. The marks Y7 and QI2 Ross were both misidentified by SCRO fingerprint examiners due to human error and there is nothing sinister about the fact that these two errors occurred in the same case.

8. The misidentifications of Y7 and QI2 Ross expose weaknesses in the methodology of fingerprint comparison and in particular where it involves complex marks.

9. Fingerprint examiners are presently ill-equipped to reason their conclusions as they are accustomed to regarding their conclusions as a matter of certainty and seldom challenged.

10. There is no reason to suggest that fingerprint comparison in general is an inherently unreliable form of evidence but practitioners and fact-finders alike require to give due consideration to the limits of the discipline.

Key Recommendations

In all I have indicated 86 recommendations for future action as a result of the Inquiry, which are described in the chapters comprising Part 7 and in full in chapter 43. There are ten which I consider to be key recommendations.

1. Fingerprint evidence should be recognised as opinion evidence, not fact, and those involved in the criminal justice system need to assess it as such on its merits.

2. Examiners should discontinue reporting conclusions on identification or exclusion with a claim to 100% certainty or on any other basis suggesting that fingerprint evidence is infallible.

3. Examiners should receive training which emphasises that their findings are based on personal opinion; and that this opinion is influenced by the quality of the materials that are examined, their ability to observe detail in mark and print reliably, the subjective interpretation of observed characteristics, the cogency of explanations for any differences and the subjective view of 'sufficiency'.

4. Differences of opinion between examiners should not be referred to as 'disputes'.

5. The SPSA's Standard Operating Procedures should set out in detail the ACE-V process that is to be followed.

6. Features on which examiners rely should be demonstrable to a lay person with normal eyesight as observable in the mark.

7. Explanations for any differences between a mark and a print require to be cogent if a finding of identification is to be made.

8. A finding of identification should not be made if there is an unexplained difference between a mark and a print.

9. The SPSA should develop a process to ensure that complex marks (such as Y7 and QI2 Ross) are treated differently. The examination should be undertaken by three suitably qualified examiners who reach their conclusions independently and make notes at each stage of their examination. The substantive basis for the examiners' conclusions should be reviewed. The reasons why they have reached their respective conclusions should be explored and recorded, even where they agree that an identification can be made.

10. An emphasis needs to be placed on the importance not only of learning and practising the methodology of fingerprint work, but also of engaging with members of the academic community working in the field.

CHAPTER 43

RECOMMENDATIONS

The subjective nature of fingerprint evidence

Recommendation 1 **(Para 35.132)**

Fingerprint evidence should be recognised as opinion evidence, not fact, and those involved in the criminal justice system need to assess it as such on its merits.

Recommendation 2 **(Para 35.133)**

Examiners should receive training which emphasises that their findings are based on their personal opinion; and that this opinion is influenced by the quality of the materials that are examined, their ability to observe detail in mark and print reliably, the subjective interpretation of observed characteristics, the cogency of explanations for any differences and the subjective view of 'sufficiency'.

Recommendation 3 **(Para 38.77)**

Examiners should discontinue reporting conclusions on identification or exclusion with a claim to 100% certainty or on any other basis suggesting that fingerprint evidence is infallible.

Recommendation 4 **(Para 38.72)**

Differences of opinion between examiners should not be referred to as disputes.

Recommendation 5 **(Para 38.79)**

In order to allow the court to assess the strength of their evidence, fingerprint examiners should highlight the variables relevant to their assessment and how they have formed their conclusions in the light of those variables. The conclusion should state if it has been reached through training and personal experience or on any other basis such as statistical analysis.

Fingerprint methodology

Recommendation 6 **(Para 35.137)**

The SPSA should review its procedures to reduce the risk of contextual bias.

Recommendation 7 **(Para 35.138)**

The SPSA should ensure that examiners are trained to be conscious of the risk of contextual bias.

Recommendation 8 **(Para 35.139)**

The SPSA should consider what limited information is required from the police or other sources for fingerprint examiners to carry out their work, only such information should be provided to examiners, and the information provided should be recorded.

Recommendation 9 **(Para 35.140)**

Features on which examiners rely should be demonstrable to a lay person with normal eye sight as observable in the mark.

Recommendation 10 **(Para 35.141)**

In comparing a mark and print fingerprint practitioners should pay close attention to the precise type of the characteristics and carefully evaluate differences in the type of characteristic.

Recommendation 11 **(Para 35.143)**

Explanations for any differences between mark and print require to be cogent if a finding of identification is to be made.

Recommendation 12 **(Para 35.144)**

A finding of identification should not be made if there is an unexplained difference between mark and print.

Recommendation 13 **(Para 35.145)**

Examiners should consider whether the clarity of the mark is sufficient to support a confident conclusion of identity or exclusion.

Recommendation 14 **(Para 35.146)**

Care should be taken when relying on third level detail in arriving at a finding and practitioners should pay close attention to research on the reproducibility of such detail.

Recommendation 15 **(Para 35.147)**

Where third level detail is relied upon in making a comparison this should be included in any note of the examination.

Engaging with the academic community

Recommendation 16 **(Para 35.135)**

An emphasis needs to be placed on the importance not only of learning and practising the methodology of fingerprint work, but also of engaging with members of the academic community working in the field.

Recommendation 17 **(Para 35.136)**

Fingerprint examiners need to be provided with training to enable them to articulate their reasoning. The SPSA, in conjunction with members of the academic community as appropriate, should determine how best to explain the process of reasoning in arriving at a non-numeric conclusion.

Recommendation 18 **(Para 35.142)**

The SPSA, in conjunction with members of the academic community as appropriate, should design a practical system for examiners to assess and evaluate (a) tolerances and (b) any reverse reasoning.

Standard Operating Procedures

Recommendation 19 **(Para 36.104)**

The SPSA should revise Standard Operating Procedures to take into account the recommendations from chapter 35 (recommendations 1, 2, 6-18 and 82(part)).

Recommendation 20 **(Para 36.105)**

The SPSA's Standard Operating Procedures should set out in detail the ACE-V process to be followed.

ACE-V

Exceptions to strict application of ACE-V

Recommendation 21 **(Para 36.106)**

Steps should be taken to reduce the risk of over-familiarity with prints where an examiner has prior knowledge of the print before conducting an analysis of the mark:

(i) Examiners should be made aware of the risks arising from over-familiarity with prints, by way of written guidance and training.

(ii) As wide a range of examiners as possible should be involved in the work when this risk is present. As an example, when an identification is made in such circumstances at least one verifier should be an examiner who has not previously seen the prints in question.

Recommendation 22 **(Para 36.107)**

If a 'sift' phase is employed, the examiner who has carried out the 'sift' should not participate further and a different examiner should carry out the full analysis and comparison.

Analysis

Recommendation 23 **(Para 36.108)**

At the analysis stage an examiner should assess the quality of the mark. If the examiner considers it to be complex this should be recorded and the separate process for complex marks recommended in recommendation 42 should be followed.

Recommendation 24 **(Para 36.109)**

As thorough analysis is an important safeguard against reverse reasoning, before comparison commences the whole mark should be analysed. The approach whereby only a target area is analysed for all levels of detail should be discontinued.

Recommendation 25 **(Para 36.110)**

Fingerprint examiners should assess tolerances during the analysis stage so that when they come to evaluate whether the mark and print match they are conscious of the risk of applying excessive tolerances.

Comparison

Recommendation 26 **(Para 36.111)**

Characteristics first found at the comparison stage should be included in any note of the examination. Less weight should be attached to such characteristics.

Evaluation

Recommendation 27 **(Para 36.112)**

Although evaluation may be taking place throughout the analysis/comparison part of the ACE-V process, emphasis should be placed on the need for a separate E - evaluation - stage.

Recommendation 28 **(Para 36.113)**

SPSA guidance to fingerprint examiners should emphasise the need at the evaluation stage to reflect on: tolerances, the quality of similarities, the nature of differences, any explanations for differences, the extent to which reverse reasoning may have been employed and the sufficiency of matching characteristics.

Verification

Recommendation 29 **(Para 36.114)**

All verifiers should be experienced examiners who have been given special training for this task, stressing the need for independence.

Recommendation 30 **(Para 36.115)**

A verifier should not be told of the preceding examiner's reasoning before completing A-C-E. It follows that the verifier should not be shown, for example, a photograph or comparator screen marked up to show points of similarity.

Recommendation 31 **(Para 36.116)**

A verifier should not be someone who has been consulted for advice on the mark by the original examiner in the course of his or her examination.

Recommendation 32 **(Para 36.117)**

No discussions should take place between verifiers and preceding examiners until they have completed their work and reached their conclusions.

Differences of opinion during the ACE-V process

Recommendation 33 **(Para 36.118)**

Practitioners should conduct their individual ACE comparisons conscious of the fact that they are working in a field where there is no certainty and where there is scope for differences of opinion. When it comes to verification, examiners should be encouraged to be open and to adopt a challenging attitude to the opinions of other examiners, irrespective of seniority. Standard Operating Procedures should emphasise that the fact that one examiner reaches the opposite conclusion from another, or entertains any doubt, does not necessarily cast any aspersion on the competence of either examiner.

Recommendation 34 **(Para 36.119)**

The SPSA should review its Standard Operating Procedures relative to handling differences of opinion and provision should be made not only for cases of disagreement between examiners but also for instances where an examiner has some doubt about the finding which is being verified.

Recommendation 35 (Para 36.120)

Where an examiner has doubts, the comparison should be processed in accordance with the complex marks procedure recommended in recommendation 42.

Recommendation 36 (Para 36.121)

The SPSA should amend its procedures to include a review panel to consider any disagreement between examiners:

(i) Where there is a disagreement between examiners the further investigation should be conducted by a panel the members of which should have had no prior involvement with the mark in question but need not come from outside SPSA.

(ii) The members of the panel should each examine the mark independently without any background information about the case or knowledge of the conclusions of the other panel members.

(iii) Once the panel members have reached their own conclusions, they should, as a panel, look at the reasoning of the earlier examiners.

(iv) A result of the review should be that examiners understand why they came to different views.

(v) If the panel members are unanimous, then the result can be reported.

Images

Recommendation 37 (Para 37.103)

The training and use of specialist fingerprint photographers should be considered by SPSA.

Recommendation 38 (Para 37.104)

Fingerprint photographers should provide an examiner with a selection of images of a mark.

Recommendation 39 (Para 37.105)

In relation to digital images:

(i) the digital original should be stored separately;

(ii) any digital image processing should be carried out only on accurate replicas of the digital original;

(iii) any adjustments made to the digital image should be recorded as part of the audit trail.

Recommendation 40 (Para 37.106)

Any adjustments made to a photographic print should be recorded as part of the audit trail.

Viewing of original object on which mark is found

Recommendation 41 (Para 37.107)

Consideration requires to be given to the need for examiners to examine the object on which the mark was found

Complex marks

Recommendation 42 (Para 39.24)

The SPSA should develop a process to ensure that complex marks such as Y7 and QI2 Ross are treated differently. Such a process should include the following principal elements:

(i) Examination should be by three suitably qualified examiners.

(ii) Notes should be taken at each stage of ACE-V by every examiner involved in the process. Those notes should record the information specified in recommendation 52.

(iii) No examiner should disclose his or her conclusion to another examiner until all three examiners have reached their independent conclusions.

(iv) After all three examiners have completed their individual comparisons they should meet and review the substantive basis of their conclusions. The reasons each has for their respective conclusions should be explored, even when they agree that an identification can be made. Any differences of opinion among them should be discussed in order to determine whether the conclusion is reliable. A note should be kept of the matters discussed at the technical review meeting.

Questioned marks

Recommendation 43 (Para 39.25)

Where the police or COPFS require a fingerprint comparison to be reconsidered by SPSA for any reason the matter should be referred to the review panel to be addressed in accordance with the procedures recommended in recommendation 36.

Record-keeping and note-taking

Audit trail

Recommendation 44 (Para 37.108)

The method used by scene of crime examiners to detect and record a mark should be recorded as part of the audit trail for that mark.

Recommendation 45 (Para 37.109)

The selection of images provided to the examiner, the image chosen for comparison work and the photographic negatives, if any, should all be recorded as part of the audit trail.

Recommendation 46 (Para 37.110)

Any image(s) studied by the examiner in making an identification should be provided to the Crown on request together with the remainder of the selection of images.

Recommendation 47 (Para 37.111)

A record should be kept for each mark which

(i) shows whether or not it has been regarded as suitable for comparison;

(ii) lists all prints with which it has been compared.

Recommendation 48 **(Para 37.112)**

Any discussions between examiners (including any consultation with an examiner not directly involved in the comparison of the mark in question) at any stage of ACE-V should be recorded.

Recommendation 49 **(Para 37.113)**

The audit trail for a mark should be available to the Crown if requested.

Note-taking

Recommendation 50 **(Para 37.114)**

Examiners should always take notes when they are examining marks that they consider to be complex.

Recommendation 51 **(Para 37.115)**

Notes should be taken in any case in which a fresh comparison is made in response to a request from the Crown for a report.

Recommendation 52 **(Para 37.116)**

Where notes are required as a result of the preceding recommendations, the notes should be taken at each stage of ACE-V by every examiner involved in the process at that stage and should cover the following matters:

(i) the assessment of the quality of the mark at the analysis stage and any sign of distortion;

(ii) the characteristics identified at analysis including their type and the sequence of them;

(iii) the characteristics taken into account at the comparison stage including their types and sequence in mark and print;

(iv) any revision to the initial analysis made at the comparison stage;

(v) any differences observed at the comparison stage;

(vi) the explanation for any differences;

(vii) any third level detail relied upon in arriving at the conclusion;

(viii) the reasons for the conclusion at the evaluation stage; and

(ix) any consultation with any other examiner during the ACE-V process.

Recommendation 53 **(Para 37.117)**

Subject to any requirement under ISO 17025 and recommendations 50 and 51, note-taking as to the detail found on analysis and the process of comparison, though not mandatory, should become the general practice for all fingerprint comparison work.

Provision of information to the Crown by the SPSA

Recommendation 54 **(Para 37.118)**

The omission of the SPSA from the statutory scheme of disclosure under sections 117 to 120 inclusive of the Criminal Justice and Licensing (Scotland) Act 2010 should be reviewed. The

SPSA should be regarded as having the same duties as regards provision of information to COPFS as investigating agencies under those provisions.

Recommendation 55 (Para 37.119)

SPSA and COPFS should agree and implement, as a matter of urgency, a process for the provision of information by SPSA to COPFS. COPFS should provide SPSA with information and advice as to the Crown's duty of disclosure with a view to informing SPSA's understanding of the nature and extent of the information that SPSA will require to provide to COPFS.

Recommendation 56 (Para 37.120)

The following information should always be provided to the Crown:

(i) a list of names of all examiners who have examined the mark at SPSA and their opinions as to the mark and the comparison;

(ii) whether the complex marks process has been invoked;

(iii) any discussions between examiners relating to the formulation of conclusions about a mark;

(iv) any differences of opinion between examiners;

(v) whether the mark has been subject to facilitated discussion or panel review.

Reports under sections 280 and 281 of the Criminal Procedure (Scotland) Act 1995

Recommendation 57 (Para 37.121)

Each examiner should provide a separate written opinion and prepare his or her own material before any attempt is made to produce a joint report.

Recommendation 58 (Para 37.122)

The joint report prepared should be supported by the production of the individual opinions. It should be a matter for the Crown and defence to determine whether the joint report would suffice in a given case, or whether examiners should be called to give oral evidence.

Recommendation 59 (Para 37.123)

Each examiner's separate opinion should cover:

(i) the images of the mark and also the specific print used in the comparison;

(ii) the examiner's opinion about the quality of the mark;

(iii) if the examiner considers the mark to be complex;

(iv) whether third level detail is relied upon and the fact that such detail still requires to be supported by further research that has been validated;

(v) identifying any differences between mark and print;

(vi) a summary of the reasons why any differences between mark and print have been discounted and whether the examiner relies on objective studies and evidence to account for such differences or on common sense and experience;

(vii) the characteristics relied on in making the identification, the number of such characteristics, and the classification of such characteristics, (e.g. ridge ending, bifurcation);

(viii) a marked up image of the mark and print with a legend specifying the type of the ridge detail (including any third level detail) relied upon and the associated ridge counts;

(ix) the opinion of the examiner;

(x) any consultation with another examiner during the ACE-V process, including any facilitated discussion or panel review; and

(xi) the fact that any novel method such as probabilistic analysis has been used or relied on.

Consideration of material by defence experts

Recommendation 60 (Para 37.124)

Fingerprint examiners engaged by the defence should be afforded access to the same material as that used by SPSA, in appropriate examination or laboratory conditions.

Recommendation 61 (Para 37.125)

Fingerprint examiners engaged by the defence should be afforded access to any other images of the mark or fingerprint forms as are available to SPSA and COPFS. If negatives are available, arrangements should be made on request to provide the defence examiner with any print reasonably required. If the image is in digital format the defence examiner should be given sight of the digital original and should be provided with a copy of the same.

Recommendation 62 (Para 37.126)

As a matter of good practice, defence examiners should examine the unmarked mark and print and reach their own conclusions on that material before examining any marked images produced by SPSA.

Recommendation 63 (Para 37.127)

In the event of a challenge to an identification the defence should disclose the full reasons why it believes that the SPSA examiners' opinions are incorrect. This may require the disclosure of marked up images of mark and print with a legend specifying the type of characteristic and associated ridge counts. Such disclosure should take place at a reasonable time before the trial in question. It should take place where appropriate in the context of the provision of defence statements in accordance with section 124 of the Criminal Justice and Licensing (Scotland) Act 2010.

Presentation of fingerprint evidence in court

Recommendation 64 (Para 37.128)

COPFS should pay particular attention to ensuring that fingerprint evidence is presented to the court in such manner as to be readily understood by the judge and jury.

Recommendation 65 (Para 37.129)

The use of technology to assist fingerprint examiners in demonstrating to the court aspects of their evidence should be explored.

'Unable to exclude'

Recommendation 66 **(Para 38.84)**

Before a finding of 'unable to exclude' is led in evidence, careful consideration will require to be given to (a) the types of mark for which such a finding is meaningful and (b) the proper interpretation of the finding. An examiner led in evidence to support such a finding will require to give a careful explanation of its limitations.

Erroneous identifications or exclusions

Recommendation 67 **(Para 38.73)**

The SPSA should investigate all 'erroneous' fingerprint identifications or exclusions.

Recommendation 68 **(Para 38.74)**

Cases where there is scope for a difference of opinion should not be classified as 'erroneous'. The cases that merit investigation are where there may have been a mistaken fingerprint analysis or a breach of accepted procedures.

Recommendation 69 **(Para 38.75)**

The SPSA should consider whether their procedures require to be revised in the light of the findings of an investigation of an erroneous fingerprint identification or exclusion.

Training and performance management

SPSA

Recommendation 70 **(Para 40.114)**

The SPSA should introduce a requirement that fingerprint examiners have training and development in core fingerprint examiner skills each year.

Recommendation 71 **(Para 38.81)**

All fingerprint examiners at SPSA should receive court skills training at suitable intervals. The training should emphasise the role of the expert witness.

Recommendation 72 **(Para 38.82)**

Examiners should be discouraged from using stock phrases or responses to questions.

Recommendation 73 **(Para 40.115)**

The discussions about the possibility of having a national dip sampling regime should be pursued, as this would introduce an element of external validation. The proposal whereby some dip sampling will be carried out by SPSA personnel from other bureaux should be implemented in the interim.

Recommendation 74 **(Para 40.116)**

The SPSA should develop a procedure for the provision of information to COPFS where issues have been raised about the performance of an examiner who may be required to report or give evidence. COPFS should provide SPSA with guidance as to the nature and

extent of the information that should be provided in order to enable COPFS to comply with its duties of disclosure to the defence.

COPFS

Recommendation 75 **(Para 38.83)**

COPFS should ensure that appropriate written guidance as to fingerprint evidence is available to its staff. COPFS should also ensure that a sufficient number of lawyers fully conversant with fingerprint evidence are available to deal with any issues that may arise.

Accreditation and authorisation of examiners

Recommendation 76 **(Para 40.117)**

The system for authorisation under section 280 of the Criminal Procedure (Scotland) Act 1995, so far as relating to fingerprint examiners, requires review.

Recommendation 77 **(Para 40.118)**

A system should be devised whereby any authorisation of fingerprint examiners under section 280 would be confined to the authorisation of individuals who are employed by an institution which has achieved appropriate accreditation. It would be for the Scottish Government to satisfy itself in the course of the review referred to in recommendation 76 as to what constitutes appropriate accreditation, and by whom that accreditation should be carried out.

Recommendation 78 **(Para 40.119)**

The system of registration on the National Register of Fingerprint Experts should be reviewed. If it continues in use it should be revised to ensure that the criteria for registration and the records are kept up to date and that the records indicate competence. Should SPSA for any reason decide that an examiner is no longer competent to practise, it should notify the NPIA so that the examiner's name is removed from the register and also the Scottish Government so that authorisation under section 280 is withdrawn.

Recommendation 79 **(Para 40.120)**

Absence of authorisation under the Act should not be taken as disqualifying a witness from being treated as an expert in relation to fingerprint evidence. The witness should be prepared to demonstrate his or her expert status on ordinary common law principles.

Accreditation of bureaux in Scotland

Recommendation 80 **(Para 40.113)**

The SPSA should continue to seek to obtain and retain the ISO 17025 external accreditation and such other accreditation as may become relevant in the field of fingerprint identification.

Research and development

Recommendation 81 **(Para 41.41)**

Requirements for research and development should be identified and collated and an appropriate scheme of research and development prepared by SPSA. Appropriate

arrangements and funding (when available) should then be provided to enable research and development to take place on a UK basis and where appropriate through co-operation on an international basis.

Recommendation 82 (Paras 35.134, 39.23, 41.42)

Specific matters to be included in the scheme of research and development include:

(i) the frequency of particular characteristics or combinations of characteristics in fingerprints;

(ii) the use of data as to the frequency of particular characteristics or combinations of characteristics as a means of assisting examiners in their work;

(iii) the weight to be given to third level detail, and as to its reliability;

(iv) distortion and the effect of movement;

(v) which marks ought to be assessed as complex;

(vi) the specific factors that may cause variations among examiners; and

(vii) contextual bias.

Recommendation 83 (Para 41.43)

The use of probabilistic analysis should continue to be developed.

Recommendation 84 (Para 41.44)

The SPSA should keep its practices under review in the light of developments in research.

Familiarity with developments and disputes in fingerprint law and practice

Recommendation 85 (Para 41.45)

The SPSA should task identified staff with:

(i) maintaining up-to-date knowledge of cases, at least in anglophone jurisdictions, in which fingerprint evidence has been disputed; and

(ii) monitoring cases in which courts, inquiries or other investigating bodies have made significant criticism of existing fingerprint practice and of considering whether those criticisms should be taken into account in developing and improving fingerprint practice in Scotland.

Such staff should be tasked also with advising an identified contact in COPFS as to these matters.

Recommendation 86 (Para 41.46)

COPFS should task identified staff with maintaining up-to-date knowledge of cases, at least in anglophone jurisdictions, in which fingerprint evidence has been disputed, and with liaising with an identified contact in SPSA in relation to any implications that the findings of such courts may have for fingerprint evidence in Scotland.

Appendices

Appendices

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APPENDIX 1

INQUIRY PROCEDURES

The Inquiries Act 2005 and the Inquiries (Scotland) Rules 2007

1. The procedure of the Inquiry was subject to the Inquiries Act 2005 and the Inquiries (Scotland) Rules 2007.

Core Participants

2. I designated as core participants during the course of the Inquiry those individuals and organisations who applied to be core participants that I considered had played a direct and significant role in relation to the matters to which the Inquiry related, or might be subject to significant or explicit criticism during the proceedings at the Inquiry, or had a significant interest in an important aspect of those matters or in the Inquiry's outcome. Those so designated and their recognised legal representatives are listed in appendix 3.

Commencement of hearings

3. The Salmon Commission[1] recommended that more time should be allowed than in the past for the preparation of an inquiry before public hearings begin. This was found to be sound advice as the extensive preparatory work that was carried out considerably reduced the length of the public hearings.

Witnesses' statements

4. The Inquiry engaged a number of lawyers to record statements from relevant witnesses. They were given specific training so that they understood what was required of them. Counsel to the Inquiry gave directions as to the particular issues that the witness was to be asked to address. The witness's own legal adviser was present if the witness so wished. The witness was given a draft of the statement that had been recorded and invited to sign the statement once satisfied that it was an accurate account of his or her evidence.

5. When it had been signed the statement was treated as the evidence-in-chief of the witness. Those who gave oral evidence were asked to confirm that their statement was accurate and not asked to repeat all that was in it. The statement became the evidence of those that it was not found necessary to ask to give oral evidence.

6. The witnesses to the Inquiry are listed in appendix 4 with, in the case of witnesses who were not core participants, the name of any recognised legal representative.

Documentary evidence

7. Despite the passage of time a large number of documents were recovered from public and private sources. Unfortunately one Crown Office file could not be found prior to the Inquiry hearings, the "buff folder" for the prosecution in *HMA v McKie*. The loss was to some extent ameliorated by there being available to the Inquiry the Precognition, papers for *HMA v McKie* found in the High Court file for *HMA v Asbury*, and the file of the Glasgow procurator fiscal, the recipient of much of the correspondence with Crown Office. Although part of the missing Crown Office file came to light and was made available to the Inquiry in February 2011, this did not

1 The Report of the Royal Commission on Tribunals of Inquiry, Cmnd 3121, November 1966.

cover the full period concerned; there remained a gap between 19 October 1998 and 19 January 1999.[2]

8. Pre-existing documents and also documents created for the Inquiry, such as reports and a literature review, were scanned and stored in the Inquiry's electronic database.

Availability of evidence to core participants

9. To assist with their participation in the Inquiry, core participants and their legal representatives were given access to relevant evidence electronically prior to the hearings, provided that they first gave an undertaking that they would not disclose the material. This was because the material on the database included material that had been provided subject to an obligation of confidentiality owed to the provider. The undertaking ensured that the maker of a statement or their recognised legal adviser had an opportunity to raise any legitimate objection to the statement being made public and that the rights of anyone mentioned in a document or statement were protected. It also avoided the evidence of a witness in a statement being published prior to them giving oral evidence. The undertaking ceased to apply to material put in the public domain by the Inquiry during the hearings and/or through the Inquiry's website. One recognised legal representative, Mr David Russell of Towells, and his clients were unwilling to enter into the confidentiality arrangements and so did not have such access.

10. The material was 'redacted' so that for example information not relevant to the Inquiry was not disclosed and to protect personal information in line with the law on data protection etc.

Analysis of the evidence

11. Once the documentary evidence and the witness statements were received by the Inquiry, Counsel to the Inquiry prepared an analysis of the evidence and of the issues that required to be investigated. This demanding undertaking was carried out with such attention to detail and care that it provided not only a guide for all those engaged in the Inquiry but an initial outline for my review of the evidence and preparation of this Report. The analysis by Counsel was published on the Inquiry website at the beginning of the first oral hearings.

Procedure at the public hearings

12. A note about the procedures at the Inquiry hearings was made available on the Inquiry website. The hearings were held over a period of six weeks from 2 June to 10 July 2009 and over a further ten weeks from 22 September to 27 November 2009.

13. Counsel to the Inquiry made an opening statement followed by the recognised legal representatives of the core participants. Witnesses who gave oral evidence were required to take the oath or affirm that they would tell the truth. They were cross-examined by Counsel to the Inquiry and then with leave of the Inquiry by the representatives of core participants.

2 See chapter 10 para 5ff

14. At the conclusion of the hearings, core participants' legal representatives gave short closing statements in person and/or in writing to identify the issues as they saw them.

15. During the hearings, daily progress updates were published on the Inquiry's website.

Publication of evidence

16. The Inquiry statements of witnesses appearing in person were normally published on the Inquiry website at the beginning of the week during which their oral evidence was taken. Other evidence relevant to the testimony of each witness was also uploaded, if not already published. Statements from witnesses who were not giving oral evidence were generally published together at the end of each of the two series of hearings.

17. Transcripts of a day's hearings were generally published that evening.

18. The material published on the Inquiry website was redacted as indicated above.

Recommendations

19. As I stated at the conclusion of the public hearings, those likely to be affected directly by the Inquiry's recommendations were given an opportunity to comment on them in draft.

Keeper of the Records of Scotland

20. At an early stage in the Inquiry the Keeper was consulted on the manner and format of creating, maintaining and transferring the record of the Inquiry to the National Records of Scotland.

APPENDIX 2

INQUIRY ORGANISATION AND ADMINISTRATION

The Inquiry team

1. I appointed Mr Gerry J.B. Moynihan Q.C. and Ms Ailsa Carmichael (now Q.C.) as Counsel to the Inquiry, and Mrs Ann Nelson as Solicitor and Secretary to the Inquiry. Initially Mr Roddy Flinn was deputy solicitor and Mrs Debbie Blair and Ms Emma Gilpin were assistant solicitors. Ms Gilpin returned to private practice towards the end of the Inquiry hearings. Following Mr Flinn's promotion and move to other duties, Mrs Debbie Blair became deputy solicitor. In her absence on maternity leave Mr John Grady, advocate, assumed these responsibilities until the end of the Inquiry.

2. Dr Carole Ross was the assistant secretary, Ms Lynne Allan was hearings and witness liaison manager and Ms Johann MacDougall was documentation and evidence manager all supported by Ms Katy Barclay, Mr Angus MacWilliam, Mr Mark Whitehead and others. The size of the administrative team depended upon what was required at different stages of the Inquiry.

3. The Inquiry solicitors acted under the advice of Counsel to the Inquiry and ultimately on the instructions of the Chairman given at meetings with the secretariat and legal advisers.

Accommodation

4. The Inquiry leased office accommodation within the Scottish Legal Aid Board building at Drumsheugh Gardens in Edinburgh, where the Penrose Inquiry was also later located.[1]

5. Two preliminary oral hearings in 2008 were held in Glasgow Royal Concert Hall. The main hearings were held in 2009 within Maryhill Community Central Hall in Glasgow where office and other ancillary accommodation was also provided. The decision to use this venue for the hearings was influenced by two important factors. The first was the fact that the death of Marion Ross took place in Kilmarnock and many of the potential witness lived in the west of Scotland. The second was that the hall in which the hearings took place had been adapted at public expense for the ICL Inquiry[2] which was due to complete its public hearings shortly before this Inquiry would be ready to commence its hearings. Although the use of this venue added to the travelling time for many of those who were based in Edinburgh and put a considerable burden on the administrative staff of the Inquiry the feedback that was obtained suggested that it proved to be a very suitable venue. The assistance received from the management and all of the staff of the Maryhill Community Central Hall was outstanding.

Inquiry IT

6. The advice of Mr Mike Taylor of i-Lit Ltd, an Inquiry IT expert, informed the choice of systems. This proved invaluable in ensuring that the Inquiry had IT that was fit for purpose and value for money. Epiq Systems Ltd were selected as suppliers, with Opus 2 International and Legal Inc. as sub-contractors.

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1 http://www.penroseinquiry.org.uk/
2 http://www.theiclinquiry.org/

Document storage

7. Documents received by the Inquiry were uploaded to a remotely hosted electronic database accessed using secure connections over the internet, an innovation for public inquiries in the UK at the time. This arrangement provided a high level of flexibility for reviewing and managing information combined with a high level of security. Each item of evidence was given an Inquiry reference number.

Core participant databases

8. Each of the core participant representatives and unrepresented core participants, on granting a confidentiality undertaking, had their own exclusive, externally hosted, database of relevant evidence derived from the Inquiry's remotely hosted database. These core participant databases (cpd) were identical but unconnected to one another. Access was through secure connections over the internet, another innovation at the time. The system allowed individuals in each group of users to access their cpd from any location and to read and review the material electronically and share comments within the secure confines of their own database.

9. The core participant databases were updated throughout the course of the Inquiry. As noted in appendix 1 Mr Russell and his clients did not have access to a core participant database.

Oral evidence transmission

10. During oral hearings, live video links from a camera in the hearing room were transmitted to two lounges for core participants, the press cabin and the Inquiry 'admin' office.

Document display

11. Documents were displayed at the hearings on monitors at core participants' desks and on monitors and plasma screens in front of the public seating by an operator from Legal Inc. using trial presentation software called 'TrialDirector'®. An overhead camera was available to allow the display of any paper document not already stored in the Inquiry's systems. The core participant lounges and press cabin also had document display screens. Documents were displayed on all monitors simultaneously.

12. The display system contributed greatly to the hearings, reducing the time taken to produce documents during a witness's testimony, ensuring that everyone in the hearing room was able to see the document that was being referred to and also keeping to a minimum the amount of paper there.

13. There was extensive use of visual images during the second period of hearings, when fingerprint experts explained their interpretations of various fingermarks. Counsel to the Inquiry, witnesses and cross-examining legal representatives were able to perform specific functions with the display software using the computer mouse on their desks. The hearings and witness liaison manager provided training and a number of witnesses were asked to annotate existing images using the mouse. These 'captured images' were saved electronically for future reference, for example at later hearing days, and published on the website.

14. The display system therefore played an essential and in some respects unique role in this Inquiry. It was used not only to display existing evidence, utilising functions such as zoom, rotate and simultaneous display of more than one document, but also to create new evidence in the form of these 'captured images'.

15. The system worked well, being speedy and reliable even when operating at the upper limits of capability, and it allowed the Inquiry to consider the evidence in great detail. Witnesses were generally impressed with the functionality of the system and found that it helped them to give their evidence.

Transcripts

16. The oral evidence was typed up as it was spoken, appearing on a network of laptops within seconds using the LiveNote® transcript management programme supplied to the Inquiry and operated by Opus 2 International Ltd. Legal representatives could search the text, highlight sections of evidence, write up notes etc within the system, comments could be shared within teams via an inbuilt messaging feature, and users could access LiveNote® in real time even if away from the venue.

17. The LiveNote® text was finalised by the operators at the end of the day's hearing and uploaded to the Inquiry website that evening as the transcript of the day's proceedings. Daily transcripts were published in two formats: as text files and as PDF files for each morning and afternoon session. The text files allowed the Inquiry team and legal representatives to update their real-time text with the finalised transcript while the PDF files allowed the layout to be customised for printing and easier navigation through the document.

Inquiry website

18. CIVIC was selected to build and maintain the Inquiry website. As well as background information, application forms for potential core participants and witnesses, progress updates, etc, the statements by witnesses and other Inquiry evidence were made available to the public through the website, and this Report is also available on the website.

IT suppliers

19. The Inquiry is indebted to all suppliers involved in dealing with the evidence and its transmission and publication for working tirelessly and constructively with the Inquiry team to solve the technical problems associated with meeting the Inquiry's needs. It is difficult to see how, without the technology and expertise they provided, some requirements of the Inquiry could have been met such as bringing complex images into the hearing room in ways which aided the following of the evidence. The use of File Transfer Protocol (FTP) for immediate electronic transport of documents between the Inquiry and the database contractor followed when appropriate by onward transfer to the document display contractor was essential, especially during hearings, to maintain the supply of required documents.

Public relations

20. Prompt and efficient media and public relations support was provided by Barkers Scotland Ltd from September 2008, succeeded by Golley Slater from August 2009, under a Scottish Government Marketing Services Framework agreement.

Report

21. This Report is published on behalf of the Inquiry by APS Group Scotland Ltd, under the Scottish Government contract for supply of design, print, publishing and associated services.

APPENDIX 3

CORE PARTICIPANTS

1. I designated the individuals and organisations listed in table A1 as core participants under rule 4 of the Inquiries (Scotland) Rules 2007 ('the Rules'). Many of the core participants were witnesses at the Inquiry and further information is therefore provided about those core participants in appendix 4.

Core Participant	'Recognised legal representative' under the Rules
The Lord Advocate, for the Crown Office & Procurator Fiscal Service (COPFS)[1]	The Crown Agent[2]
The Chief Constable, Strathclyde Police (Stephen House)[3]	Ranald MacPherson, solicitor, Simpson and Marwick, Edinburgh
Scottish Police Services Authority (SPSA)[4]	Amanda Jones, solicitor, Maclay Murray and Spens, Edinburgh
David Asbury, whose conviction for the murder of Miss Ross was quashed in August 2002[5]	Gordon Dalyell, solicitor, Digby Brown, Edinburgh
Alan Dunbar	Stuart Holmes, solicitor advocate, Turcan Connell, Edinburgh
Terence Foley	Mr Holmes
Alister Geddes	Mr Holmes
David Halliday	Mr Holmes
Fiona McBride	Mr Holmes
Anthony McKenna	Mr Holmes
Robert Mackenzie	Mr Holmes
Iain McKie	Mr Dalyell
Shirley McKie	Mr Dalyell
Hugh MacPherson	Mr Holmes
Malcolm Ross, a cousin of the late Miss Ross, on his own and on her behalf[6]	David Russell, solicitor, Towells, Wakefield
Charles Stewart	Mr Holmes
Peter Swann	Mr Russell
Pat Wertheim	Mr Smith Q.C. instructed by Mr Dalyell (from September 2009)

Table A1

2. The designation of most core participants was announced at the preliminary hearing on 20 October 2008. SPSA was designated as a core participant later that month, Mr Ross in November 2008 and Mr Dunbar in February 2009.

3. Mr Malcolm Graham (independent fingerprint expert), was granted core participant status in November 2008 but in December 2008 he requested that he cease to be designated and I so determined.

4. Mr John Berry (independent fingerprint expert), Professor Colin Espie (University of Glasgow), Mr Martin Leadbetter (independent fingerprint expert) and Mr Alex Neil MSP applied for but were not granted core participant status under the rules.

5. I made awards of funding for legal costs under section 40 of the Inquiries Act 2005 to Mr Dunbar, Mr Foley, Mr Geddes, Mr Halliday, Ms McBride, Mr Mackenzie, Mr McKenna, Ms McKie, Mr McKie, Mr MacPherson, Mr Stewart and, from September 2009, Mr Wertheim. SPSA, COPFS, Strathclyde Police, Mr Swann and Mr Ross did not seek funding for legal costs from the Inquiry.

6. The Turcan Connell legal team included Mr Paul Forrester-Smith, solicitor. The legal team for Ms McKie, Mr McKie and Mr Asbury included Mr Andrew Smith Q.C and Ms Amber Galbraith, advocate. The Crown Office legal team comprised Ms Angela Grahame, Q.C., Mr Michael Stuart, advocate and Mrs Alison McKenna, solicitor.

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1 The Lord Advocate was not a witness at the Inquiry.
2 Mr Norman McFadyen at the time of designation.
3 The Chief Constable was not a witness at the Inquiry.
4 Staff from SPSA were witnesses at the Inquiry.
5 Mr Asbury was not a witness at the Inquiry.
6 Mr Ross was not a witness at the Inquiry.

APPENDIX 4

INQUIRY WITNESSES[1]

The signed Inquiry statement became the evidence of those witnesses who were not called to give oral evidence at the Inquiry hearings, and the evidence-in-chief of those who were called.

Witness	Role	Inquiry Statement	Oral evidence	Legal Representative
BAYLE, Allan	Fingerprint Examiner/Forensic Consultant	FI_0154	20 October 2009	
BELL, Henry	Formerly Director of the Scottish Criminal Record Office	FI_0043 and FI_0077	3 and 7 July 2009	
BERRY, John	Fingerprint Examiner (retired)	TS_0055	Not called	David Russell, Towells
BLEAY, Dr Stephen	Research Scientist, Fingerprint and Footwear Forensic Group, Home Office Scientific Development Branch (HOSDB)	Reports: EA_0067 EA_0068 EA_0069 EA_0088 EA_0089 EA_0090 EA_0091 EA_0164 EA_0165 EA_0171	16 November 2009	
BOYD, Colin - Lord Boyd of Duncansby	Solicitor General for Scotland 1997-2000, Lord Advocate 2000-2006	FI_0057 and FI_0079	10 November 2009	Hugh Donald, Shepherd and Wedderburn LLP
BROWN, Leslie	Police (retired)	FI_0017	18 and 19 June 2009	
BROWN, Raymond	Formerly SCRO Fingerprint Officer	FI_0098 and FI_0184	Not called	
BRUCE, Edward	SCRO (now SPSA) Fingerprint Officer	FI_0015	9 and 10 July 2009	
CARLE, Stuart	Strathclyde Police	FI_0014	Not called	
CHAMBERLAIN, Paul	Forensic Scientist, Forensic Science Services	FI_0136	18 November 2009	
CHAMPOD, Professor Christophe	Professor of Forensic Science, University of Lausanne	Reports: ED_0003 ED_0004 ED_0005	25 November 2009	
CLIMIE, Gillian	Procurator Fiscal Depute, Crown Office and Procurator Fiscal Service (COPFS)	FI_0075	1 and 2 July 2009	
CROWE, Sheriff Frank	Formerly Deputy Crown Agent, COPFS	FI_0048	2 and 3 July 2009	
DEMPSTER, Gary	Fingerprint Officer	FI_0196	Not called	Gordon Dalyell, Digby Brown

1 The information as to role is as understood by the Inquiry at June 2009 when the Inquiry hearings commenced.

Witness	Role	Inquiry Statement	Oral evidence	Legal Representative
DUNBAR, Alan	Formerly Fingerprint Officer and Quality Assurance Officer, SCRO Fingerprint Bureau	FI_0053	6 October 2009	Stuart Holmes, Turcan Connell
ESPIE, Professor Colin	Clinical Psychologist, University of Glasgow	FI_0086	Not called	
FAIRHURST, David	Fingerprint Officer, Surrey Police	FI_0199	Not called	
FERGUSON, David	Scene of Crime Officer (scene examiner)	FI_0010	10 June 2009	
FINDLAY, Donald Q.C.	Defence Counsel in *HMA v McKie*	FI_0200	Not called	
FOLEY, Terence	SCRO (now SPSA) Fingerprint Officer	FI_0051	23 and 24 June 2009	Stuart Holmes, Turcan Connell
FRASER, Thomas	Formerly Identification Bureau, Strathclyde Police	FI_0085	Not called	
GEDDES, Alister	SCRO (now SPSA) Fingerprint Officer	FI_0031, FI_0032 and FI_0076	26 June and 1 July 2009	Stuart Holmes, Turcan Connell
GIBB, Norman	Formerly Chief Superintendent, Complaints and Discipline Branch, Strathclyde Police	FI_0084	Not called	
GIBBENS, Leslie	Scene of Crime Officer (retired)	FI_0074	12 June 2009	
GILCHRIST, Sheriff William	Formerly Regional Procurator Fiscal for North Strathclyde, and then Deputy Crown Agent	FI_0072	24 June 2009	
GRAHAM, Malcolm	Fingerprint Examiner (retired)	FI_0089	9 July 2009	
GRAY, Gary	Strathclyde Police	FI_0069	12 June 2009	
GREAVES, Denise	Principal Procurator Fiscal Depute, COPFS, Glasgow	FI_0038 and CO_4429	1 July 2009	
GRIGG, Geoffrey	Fingerprint Training Instructor, National Policing Improvement Agency (NPIA) (formerly National Training Centre for Scientific Support to Crime Investigation (the NTC))	FI_0081	29 and 30 September 2009	
HALL, Lisa	Fingerprint Operations Manager, Metropolitan Police	MP_0008	24 November 2009	
HALLIDAY, David	Strathclyde Police, SCRO Fingerprint Officer (retired)	FI_0011	Not called	Stuart Holmes, Turcan Connell
HEATH, Stephen	Strathclyde Police (retired) – as Detective Chief Inspector led investigation into Miss Ross's murder	FI_0013	9 June 2009	Robert Vaughan, Vaughan and Co.
HOGG, Ian	Formerly Head of the Identification Bureau, Strathclyde Police	FI_0034	17 June 2009	
HUNTER, Graham	Scene of Crime Officer (scene examiner)	FI_0042	10 June 2009	

Witness	Role	Inquiry Statement	Oral evidence	Legal Representative
INNES, Ewan	Formerly Head of the Scottish Fingerprint Service	FI_2410 and FI_0185	Not called	
KENT, Terence	Research Scientist (HOSDB - retired)	FI_0052	7 July 2009	
KERR, James	Strathclyde Police	FI_0044	17 and 18 June 2009	
LEADBETTER, Martin	Fingerprint Examiner	FI_0148	23 October 2009	David Russell, Towells
LEES, Mark	Strathclyde Police	FI_0012	18 June 2009	
LOGAN, Jeffrey	Head of Fingerprint Bureau, Police Service of Northern Ireland	Reports: NI_0002 NI_0003 NI_0005 NI_0007 NI_0008	16 November 2009	
LUCKRAFT, Richard	Fingerprint Officer	FI_0113	20 October 2009	
MACKENZIE, Robert	Formerly Fingerprint Officer and Deputy Head of SCRO Fingerprint Bureau	FI_0046 and FI_0047	30 September 1-2 October, 6 October and 10-11 November 2009	Stuart Holmes, Turcan Connell
MACLEOD, Alexander	Strathclyde Police, SCRO Fingerprint Officer (retired)	FI_0119	Not called	
MACLEOD, John	Fingerprint Consultant	none	9 October 2009	
MACNEIL, Robert	Scene of Crime Officer (scene examiner)	FI_0018	11 and 12 June 2009	
MACPHERSON, Hugh	Formerly SCRO Fingerprint Officer	FI_0055 FI_0056	27-29 October and 03 November 2009	Stuart Holmes, Turcan Connell
MCALLISTER, Alexander	Strathclyde Police	FI_0068	12 and 16 June 2009	
MCBRIDE, Fiona	Formerly SCRO Fingerprint Officer	FI_0039 and FI_0040	6 and 11 November 2009	Stuart Holmes, Turcan Connell
MCCLURE, Jean	SCRO (now SPSA) Fingerprint Officer	FI_0016	Not called	
MCGINNIES, Alex	Training Officer, SPSA	FI_0193	3 and 4 November 2009	
MCGREGOR, John	Fingerprint/scene of crime officer Grampian Police, now Fingerprint Unit Manager, SPSA, Aberdeen	FI_0112	Not called	
MCINTYRE, Graeme	Strathclyde Police	FI_0041	18 June 2009	
MCKAY, Collette	Fingerprint Officer, SPSA	FI_0009	17 June 2009	
MCKENNA, Anthony	Formerly SCRO Fingerprint Officer	FI_0054	06 November 2009	Stuart Holmes, Turcan Connell

Witness	Role	Inquiry Statement	Oral evidence	Legal Representative
MCKIE, Iain	Father of Shirley McKie, Strathclyde Police (retired)	FI_0181 and FI_0186	15 October 2009	Gordon Dalyell, Digby Brown
MCKIE, Shirley	Formerly Strathclyde Police	FI_0071	Excused on medical grounds	Gordon Dalyell, Digby Brown
MCKINLAY, Archibald	Scene of Crime Officer (scene examiner)	FI_0035	Not called	
MCKINLAY, Gordon	Golf Professional		23 June 2009	
MCMENEMY, John	Senior Procurator Fiscal Depute, COPFS, Kilmarnock (retired)	FI_0073	11 June 2009	
MCNALLY (Formerly NICOL), Lynne	Strathclyde Police	FI_0107	Not called	
MCQUEEN, Lorna	Formerly SCRO Fingerprint Officer	FI_0097	Not called	
MITCHELL, John	Strathclyde Police	FI_0001 FI_0002	Not called	
MOFFAT, Michael	Scene of Crime Officer (scene examiner)	FI_0003	10 and 11 June 2009	
MORGAN, Alistair	Strathclyde Police	FI_0030	17 June 2009	
MURPHY, Sheriff Sean	Formerly (as Q.C.) Advocate Depute, COPFS - trial Advocate Depute in *HMA v McKie*	FI_0070 and AJ_0002	25 June 2009	
NELSON, Tom	Director of Forensic Services, SPSA	FI_0153	13 November 2009	
NICOLSON, Ruaraidh	Strathclyde Police	FI_0004	Not called	
NOBLE, Anne	Formerly SCRO Fingerprint Officer	FI_0096	Not called	
O'NEILL, William	Strathclyde Police (retired) formerly Head of SCRO Fingerprint Bureau	FI_0120	Not called	Lynn Richmond, Turcan Connell
ORR, Colette	SCRO (now SPSA) Fingerprint Officer	FI_0194	Not called	
PADDEN, Greg	SCRO (now SPSA) Fingerprint Officer	FI_0008	19 and 23 June 2009	
PATTISON, Scott	Director of Operations, COPFS	FI_0114 and FI_0195	13 and 17 November 2009	
PUGH, Gary	Director of Forensic Services, Metropolitan Police	MP_0008	24 November 2009	
RAE, Sir William	Formerly Chief Constable Dumfries and Galloway then Chief Constable Strathclyde Police (retired)	FI_0050	Not called	
REDGEWELL, June	Fingerprint Services Manager, Directorate of Forensic Services, Metropolitan Police	None	24 November 2009	
REID, Kerr	Strathclyde Police (retired)	FI_0045	9 June 2009	
RENNISON, Andrew	Forensic Science Regulator	EB_0001	8 July 2009	

Witness	Role	Inquiry Statement	Oral evidence	Legal Representative
SCOTT, Marion	Journalist	none	23 June 2009	
SHEPPARD, Geoffrey	Fingerprint Examiner (retired), until 2005 Head of Fingerprint Training at the NTC	FI_0082 and FI_0206	7 and 8 July 2009	
SHIELDS, William	Strathclyde Police	FI_0080	09 July 2009	
SMILLIE, Graeme	SCRO (now SPSA) Fingerprint Officer	FI_0007	Not called	
SMITH, Christie	Deputy Director Police Division, Police and Community Safety Directorate, Scottish Government	FI_0116	Not called	
STEVENS, Alan	Strathclyde Police	FI_0033	18 June 2009	
STEWART, Charles	Formerly SCRO Fingerprint Officer	FI_0036	05 November 2009	Stuart Holmes, Turcan Connell
SWANN, Peter	Fingerprint Examiner	FI_0149	21-22 October and 27 November 2009	David Russell, Towells
THOMPSON, Michael	Head of National Fingerprint Training at the NPIA	FI_0207	Not called	
THURLEY, David	Scene of Crime Officer (retired)	FI_0037	10 June 2009	
TIERNEY, Joanne	Fingerprint Unit Manager, SPSA Edinburgh	FI_0152 and FI_0197	12 November 2009	
WERTHEIM, Pat	Fingerprint Examiner	FI_0118	22-24 September and 23 November 2009	Andrew Smith Q.C. instructed by Gordon Dalyell, Digby Brown
WILSON, Laurence	Strathclyde Police (retired)	FI_0078	Not called	
WILSON, Stuart	Scene of Crime Officer (scene examiner)	FI_0019	17 June 2009	
ZEELENBERG, Arie	Fingerprint Examiner	FI_0115, FI_0201 and FI_0203	7 and 8 October 2009	

APPENDIX 5

CHAIRMAN'S WRITTEN RULINGS

These are the three rulings I gave in written form during the course of the Inquiry.

1. 3 February 2009: Specialist assistance for the Inquiry

This Decision deals with the issue of specialist assistance for the Inquiry.

At the Procedural Hearing on 21 November Mr Moynihan, Senior Counsel to the Inquiry, indicated that consideration was being given to instructing Professor Christophe Champod of the University of Lausanne as the Inquiry's expert witness, and the role that he might fulfil if instructed.

In the light of the reaction to this proposal at the Hearing, I asked Counsel to the Inquiry to reconsider the proposed approach: namely, the use of a single individual, Professor Champod, as the Inquiry's expert witness undertaking all the tasks Mr Moynihan had outlined.

In the intervening period, with the Inquiry team, I have been addressing this matter most carefully, taking into account the views expressed by core participants both at the hearing and subsequently. This has inevitably taken some time.

Fingerprint procedures, in the broadest sense, lie at the heart of this Inquiry. I recognise that various individuals connected with the Inquiry, whether as core participants or potential witnesses, are themselves experts. However, having regard to the specialised subject matter of the Inquiry and my statutory duties, I have decided that it is essential that the Inquiry has, in addition, expert input from elsewhere.

I am not persuaded that there is any substantive reason to rule out Professor Champod. In a specialised area like this it is inevitable that persons may have some sort of association with those involved, or a general interest in the subject matter, but I am satisfied that Professor Champod is sufficiently independent for the Inquiry's purposes.

However I am persuaded that the Inquiry ought not to adopt Mr Moynihan's proposal to use Professor Champod alone. Instead, in order to ensure balance, the Inquiry will proceed with a modified approach, which is to obtain expert assistance from more than one source.

At this stage in the Inquiry's development, I have decided that the tasks identified so far should be distributed in the following way.

Dr Stephen Bleay of the Home Office Scientific Development Branch will be asked to work on various technical tasks – developing negatives, producing high resolution copies of photographs, and examining such of the relevant original exhibits as still exist. The latter is the task outlined by Mr Moynihan on 21 November, "to examine the original material (that is the door frame, the gift tag, the tin and the bank note) to see if any current method could assist in retrieving any better or new image of the marks."

Depending on the outcome of this work, Dr Bleay may be asked to do further work on the original material.

On 21 November Mr Moynihan outlined a review which he proposed that Professor Champod should undertake: “Using the existing reports and also witness statements, Professor Champod will be asked to assist the Inquiry team to identify the specific areas in dispute and to facilitate focused questioning on disputed details at the hearings of the Inquiry.” He went on: “Should there be any experimental work that may help to elucidate matters, then Professor Champod would be asked to carry this out and the results of any such work would form part of his evidence.”

Again in the interests of balance, and recognising that Professor Champod does not claim to be a fingerprint practitioner, I have decided that this review ought to be done by more than one person. Professor Champod will be asked to do the review, but, in addition, my intention is that one or more others, who are fingerprint examiners or practitioners, will also be instructed. That will allow Counsel to have the benefit of a range of views. I am not yet in a position to indicate who the other individual or individuals will be. The Inquiry team are pursuing some leads, but I would welcome suggestions from core participants. If there is not consensus, I will decide upon how many and who should be instructed.[1]

On 21 November, Mr Moynihan indicated that the Inquiry team and I had had a preliminary meeting with Professor Champod. Two points arise from that meeting.

Firstly, Professor Champod presented a layman’s guide to fingerprints. I found that helpful and I consider that such a presentation might be helpful at an early stage of the hearings for the benefit of members of the public. I currently consider that Professor Champod should give that presentation.

However, as we go forward, it may emerge that it would more appropriately be given by another, and I therefore reserve my decision on this.

Secondly, I am aware that Professor Champod’s research interests include the application of statistics in the analysis of fingerprints. On that topic it will also be my intention to seek evidence from more than one source.

At the Procedural Hearing, Mr Moynihan proposed that “The Inquiry team will review the witness statements, any report from Professor Champod and documented productions to identify … the ‘key issues’. … The Inquiry team will determine which witnesses they would propose … to call to give oral evidence and the lines of questioning they would propose to put to the witnesses. That analysis would be circulated to core participants for their consideration and comment.”

It seems to me that that approach is appropriate subject to the variation, in the light of my decision above, that Professor Champod will not be the only source of such a report. The analysis will take into consideration the full range of contributions that the Inquiry team receives. Subject to any unexpected developments, I intend that the Inquiry proceed on this basis.

1 Chapter 24 describes how this exercise came to be abandoned.

Some of the work that I have mentioned, such as the development of negatives, is technical assistance. However, where opinions are provided or reports prepared for the Inquiry I intend that these will be in writing and made available, and that the authors may be called as expert witnesses at Inquiry hearings. Within the context of law and practice in Scotland, it will be for me as Inquiry Chairman to accept or reject any expert evidence that I receive.

2. 16 March 2009: Senior Counsel to the Inquiry

This Decision is with regard to the position of Senior Counsel to the Inquiry.

On 21 April 2008 I appointed Mr G.J.B. Moynihan Q.C. to be Senior Counsel to the Inquiry. Since then Mr Moynihan, together with Miss Ailsa Carmichael Q.C., has been working under my direction as to the lines that the inquiry is to follow.

In the course of gathering documents the Crown Office file in the case of *HMA v David Asbury* was received in the offices of the Inquiry on 23 January 2009. When it was read by Mr Moynihan on 28 January 2009 he found that as an advocate depute in 1997 he gave the instruction to indict Mr Asbury in the High Court and directed also that further inquiries should be made. Mr Moynihan informed me of this development at once and he advised me that he had had no recollection of being involved in the prosecution of Mr Asbury in this way nor did he have any present recollection of having been involved.

I decided that it was not in the public interest for the Inquiry or Mr Moynihan's role in it to be suspended while his position as Senior Counsel to the Inquiry was under review. There are considerable ongoing costs being incurred and I was anxious that the indicative date for the first public hearing should be met. I was prepared to appoint another senior counsel in place of Mr Moynihan, if it proved to me essential to do so. However, I appreciated that this would cause delay and might not turn out to be necessary once I had considered the position in detail.

The terms of reference of the Inquiry are:

- to inquire into the steps that were taken to identify and verify the finger prints associated with, and leading up to, the case of *HM Advocate v McKie* in 1999, and

- to determine, in relation to the fingerprint designated Y7, the consequences of the steps taken, or not taken, and

- to report findings of fact and make recommendations as to what measures might now be introduced, beyond those that have already been introduced since 1999, to ensure that any shortcomings are avoided in the future.

At a procedural hearing of the Inquiry on 21 November 2008 I stated, in general terms, the issues that I was minded to examine though I made it clear that I would keep these under review. One of these issues was the identification and verification of the marks labelled Y7, QI2, QD2 and XF.

At the preliminary stages of the case of *HMA v David Asbury* the evidence was that his mark XF had been found on a gift tag attached to a parcel in the home of the late Marion Ross. He had worked there in the past but the gift tag and contents

of the parcel to which the tag was attached could not have been in her house at the time that he did this work. When he was asked during an interview if he had murdered Miss Ross he responded, after a pause of 38 seconds, that he had not. He also said that he had not been in Marion Ross's house since the work he was engaged on had been completed.

At Mr Asbury's home a quantity of money was found in a tin in his bedroom. Five days after the discovery of the body of Marion Ross was made public Mr Asbury disappeared from home overnight, leaving a note for his mother. He returned home the following day.

Subsequently in a voluntary statement Mr Asbury said that he had been in Miss Ross's house after the work had been finished and that this was about two or three days before she was murdered. The circumstances were that he thought his car had broken down and he called at Marion Ross's house to ask if he could use her telephone to call his mother to come and collect him. As he was about to use her telephone he realised that his car had not broken down but had run out of petrol and so he did not make the call. After this Miss Ross showed him round the extension he had helped to build earlier so that he could see it when painted and carpeted. He added that he had used the lavatory before leaving the house.

On the basis of this evidence an advocate depute (not Mr Moynihan) authorised the local procurator fiscal to apply to the court to have Mr Asbury fully committed for trial on a charge of murder.

After full committal by the Sheriff had taken place, evidence was obtained that the mark QI2 (on the tin, containing a substantial sum of money, found in the bedroom used by Mr Asbury) had been identified as that of the late Marion Ross. It was after this that the case was referred to Mr Moynihan, in his capacity as the duty advocate depute, and he directed that Mr Asbury be indicted for murder. In my view this cannot be regarded as a controversial decision as the evidence was prima facie now stronger than it had been when the earlier decision had been made by the Court to fully commit Mr Asbury for trial in solemn form. It is significant that at the trial of Mr Asbury leading to his conviction it was not disputed by the defence that the mark XF was his or that QI2 was that of the deceased Marion Ross. It was much later that a question first arose about the identity of QI2 and the mark XF has never been the subject of dispute.

By the time of Mr Moynihan's involvement the tin and money had been seized as productions. Y7 and QI2 had both been found and photographed and SCRO examiners had provided opinions that the donors of the marks were respectively Shirley McKie and Marion Ross.

While it could in no sense be decisive of the issue as to whether Mr Moynihan should continue as counsel to the Inquiry I decided that each of the core participants should be informed about the position and asked if they had any objection to Mr Moynihan continuing as Senior Counsel. It was appropriate to begin by informing Digby Brown, solicitors, as one of their clients, David Asbury, was potentially the person most directly affected. The Crown Office file was given to the Inquiry under an obligation of confidentiality and I considered that all core participants, subject to the same obligation, should be offered an opportunity to inspect the relevant part of the file for themselves if they wished to do so.

All of the core participants other than those represented *pro bono* by Mr David Russell of Towells, solicitors, raised no objection. Mr Russell, on behalf of the core participants Mr Peter Swann and Mr Malcolm Ross, expressed a strong objection to Mr Moynihan continuing in the Inquiry. Although it was explained that it is envisaged that material from the Crown Office file will be put in the public domain in due course, Mr Russell declined to examine the file by reason of the constraint with regard to confidentiality. He has provided me with comprehensive written submissions in which he has asked for a public sitting with a number of witnesses that he named called to give evidence.

After careful consideration I have decided that such a public hearing would not assist me in arriving at a decision on this issue especially when I have had such an extensive written submission already from Mr Russell.

Decision

Over eleven years have passed since Mr Moynihan had a part in the prosecution of Mr Asbury. While it might have been expected that the subsequent publicity surrounding the prosecution of Shirley McKie would have reminded him of his earlier role in the prosecution of Mr Asbury I accept that this did not happen. Given the way in which the Crown Office operated at that time with different advocate deputes looking at files at the various stages of a prosecution and the fact that he did not conduct the trial of David Asbury it is not surprising that he has no recollection of it. Since he had no such recollection he was under no duty to disclose it to me prior to his appointment.

In this Inquiry it is for me to inquire as well as to report and to decide who are to be and who are not to be called as witnesses; I direct the lines of inquiry to be followed; and I give instructions as to who should be interviewed as potential witnesses. The role of counsel to the Inquiry, important as it is, has to be seen in this context.

The issue to be decided by me is whether Mr Moynihan's involvement, as described earlier, in the prosecution of Mr David Asbury could vitiate the fairness and impartiality of the inquiry that I am undertaking if he continues in the role of senior counsel. The conclusion I have reached is that a fair minded person, who is neither complacent nor unduly sensitive or suspicious, knowing the relevant facts, would not consider that there is a real as opposed to fanciful possibility of this happening. Accordingly I have decided that Mr Moynihan should continue to act as Senior Counsel to the Inquiry.

3. 5 November 2009: Shirley McKie and the Inquiry

This decision is about Shirley McKie.

Shirley McKie provided a written statement to the Inquiry dated 2nd June 2009.

The Inquiry issued a notice (the Notice) to Shirley McKie, dated 1st September 2009. The Notice informed her that in terms of the powers conferred on me by section 21 of the Inquiries Act 2005 I required her to attend at certain oral hearings of the Inquiry to give evidence.

She then submitted a claim to the Inquiry seeking to be excused from compliance with the Notice on medical grounds. She provided medical evidence in support of her claim.

Thereafter I appointed a suitably qualified medical practitioner who had not previously treated or reported upon Shirley McKie to examine her and report to me. That medical practitioner has carried out an examination of Shirley McKie. He has provided a report to me on soul and conscience.

I have considered that report, Shirley McKie's claim and the supporting medical evidence submitted by her.

I have also considered the information that she could provide to the Inquiry.

She can assist the Inquiry in respect of one principal matter: whether she entered the locus, 43 Irvine Road, Kilmarnock, at any time before mark Y7 was found. Her written statement to the Inquiry deals with this matter.

She gave evidence on this matter, on oath, at the High Court of Justiciary in the trials *Her Majesty's Advocate v Asbury* and *Her Majesty's Advocate v McKie*. The Inquiry has the relevant transcripts of the proceedings of these trials.

Her written statement to the Inquiry also deals with the allegation that she committed perjury in the trial *Her Majesty's Advocate v McKie*.

Having considered the information already available to the Inquiry in relation to these matters and the reports provided to me I have determined that it is not reasonable in all the circumstances to require Shirley McKie to comply with the Notice. Therefore, I have revoked the Notice on these grounds.

APPENDIX 6

THE COMPARATIVE EXERCISE

1. The comparative exercise is described in chapter 24, and the materials available to the Inquiry are mentioned in chapter 1. This appendix notes the materials supplied for the comparative exercise and lists the contributions received with their Inquiry reference numbers.

Phase 1

2. In Phase 1 the Inquiry supplied images and other material to the contributors and they prepared charted enlargements of Y7 and QI2 with accompanying information.

Material supplied

3. The pack comprised photographic material and a DVD with a covering letter and instructions for carrying out the exercise. A form for the contributor's analysis of the marks and a number of tables were provided for completion.[1] Two sheets of A2 size were also supplied with spaces for the contributor to mount a marked up enlargement of mark and print side-by-side,[2] with a sample illustrating enlargements already so mounted.[3]

4. The photographic material provided to contributors:

The mark	Size	Photographic image for mark	Photographic image from fingerprint form
Y7	actual size	produced from scanned image of original photograph by SERIS – MPS[4] FI_2450h	image of whole form produced from scanned image of original form by SERIS – MPS FI_2467h
	x8 enlargement	produced from wet photography of digitally scanned (at 5000ppi) original negative by HOSDB[5] FI_2451h	plain left thumb impression from form produced from scanned image of original form by SERIS – MPS FI_2452h
QI2	actual size	produced from scanned image of original photograph by SERIS – MPS FI_2455h	image of whole form produced from scanned image of original form by SERIS – MPS FI_2468h
	x8 enlargement	produced from scanned image of original photograph by SERIS – MPS FI_2456h	right forefinger impression from 'dead print' form produced from scanned image of original form by SERIS – MPS FI_2457h
XF	actual size	produced from scanned image of original photograph by SERIS – MPS FI_2454h	image of whole form produced from scanned image of photographic copy of form by SERIS – MPS FI_2469h

Table A2

1 FI_2449h
2 FI_2459h and FI_2460h
3 FI_2458h
4 SERIS–MPS: Specialist Evidence Recovery Imaging Service – Metropolitan Police Service: part of the Directorate of Forensic Services in MPS
5 Home Office Scientific Development Branch

5. The DVD, produced by HOSDB, contained digital images of Y7, QI2 and XF (scanned from original negatives) and digital scans of the original fingerprint forms of Ms McKie (dated 6 February 1997),[6] Miss Ross (dated 10 January 1997)[7] and the copy forms of Mr Asbury (dated 26 January 1997).[8]

Responses received from Phase 1 contributors

6. The responses received from Phase 1 contributors were given these Inquiry reference numbers:

Witness	Description	Reference
SCRO	Phase 1 Y7 – Charting, table and comments	FI_0106
	Phase 1 QI2 – Charting, table and comments	FI_0102
	Phase 1 XF – Comments	FI_0111
	Phase 1 Y7 – Charted Enlargement	FI_0167A
	Phase 1 QI2 – Charted Enlargement	FI_0166A
Grigg, Geoffrey	Phase 1 Y7 – Charting, table and comments	FI_0104
	Phase 1 QI2 – Charting, table and comments	FI_0100
	Phase 1 Y7, QI2 and XF – Tables and comments	FI_0110
	Phase 1 Y7 – Charted Enlargement	FI_0168A
	Phase 1 QI2 – Charted Enlargement	FI_0169A
MacLeod, John	Phase 1 Y7 – Charting, table and comments	FI_0105
	Phase 1 QI2 – Charting, table and comments	FI_0101
	Phase 1 Y7, QI2 and XF – Tables and comments	FI_0109
	Phase 1 Y7 – Charted Enlargement	FI_0162A
	Phase 1 QI2 – Charted Enlargement	FI_0163A
Wertheim, Pat	Phase 1 Y7 – Charting, table and comments	FI_0123
	Phase 1 QI2 – Charting, table and comments	FI_0124
	Phase 1 Y7, QI2 and XF – Tables and comments	FI_0130
	Phase 1 Y7 – Charted Enlargement	FI_0164A
	Phase 1 QI2 – Charted Enlargement	FI_0165A
Zeelenberg, Arie	Phase 1 Y7 – Charting, table and comments	FI_0099
	Phase 1 QI2 – Charting, table and comments	FI_0103
	Phase 1 Y7, QI2 and XF – Tables and comments	FI_0108
	Phase 1 Y7 – Charted Enlargement	FI_0170A
	Phase 1 QI2 – Charted Enlargement	FI_0171A

Table A3

6 ST_0004h
7 DB_0142h
8 SG_0349h (marked inaccurate), SG_0350h and SG_0351h

Phase 2

Material supplied

7. The contributions from Phase 1 were collated by the Metropolitan Police and converted into digital images and a "master volume" was compiled for issue on DVD. The DVDs had scanned completed tables and analysis forms from the Phase 1 contributors and scanned images of their charted enlargements showing, in each case, the mark and print side by side. A covering letter enclosed instructions and tables for completion by the Phase 2 contributors. Phase 2 contributors were not asked to produce chartings; they commented in writing only.

Responses received from Phase 2 contributors

8. The responses received from Phase 2 contributors were given these Inquiry reference numbers:

Witness	Description	Reference
Bayle, Alan	Phase 2 QI2 - Tables	FI_0121
	Phase 2 Y7 - Tables	FI_0122
Grigg, Geoffrey	Phase 2 QI2 - Tables	FI_0125
	Phase 2 Y7 - Tables	FI_0126
Halliday, David	Phase 2 Y7 - Tables	FI_0213 and FI_0146
	Phase 2 Y7 and QI2 - comments	FI_0147[9]
Leadbetter, Martin	Phase 2 QI2 - Comments	FI_0137
	Phase 2 Y7 - Comments	FI_0138
Mackenzie, Robert	Phase 2 QI2 - Tables	FI_0139
	Phase 2 Y7 - Tables	FI_0140
MacLeod, John	Phase 2 QI2 - Tables and comments	FI_0127
	Phase 2 Y7 - Tables and comments	FI_0128
MacPherson, Hugh	Phase 2 QI2 - Table re Grigg Phase 1	FI_0141
	Phase 2 QI2 - Tables updated including responses re the other Phase 1 contributors	FI_0172
	Phase 2 Y7 - Tables re Grigg, MacLeod and Zeelenberg	FI_0142
	Phase 2 Y7 Tables updated including response re Wertheim	FI_0173
McBride, Fiona	Phase 2 QI2 - Tables and comments	FI_0191
	Phase 2 Y7 - Tables and comments	FI_0192
McGregor, John	Phase 2 QI2 - Tables	FI_0204
	Phase 2 Y7 - Tables	FI_0129
McKenna, Anthony	Phase 2 QI2 - Tables	FI_0174
	Phase 2 Y7 - Tables	FI_0175
Stewart, Charles	Phase 2 QI2 - Comments	FI_0143
Swann, Peter	Phase 2 QI2 - Tables and comments	FI_0144
	Phase 2 Y7 - Tables and comments	FI_0145
Wertheim, Pat	Phase 2 QI2 - Tables	FI_0131
	Phase 2 Y7 - Tables	FI_0132
Zeelenberg, Arie	Phase 2 QI2 - Table re SCRO Phase 1	FI_0133
	Phase 2 Y7 - Table re SCRO Phase 1, and correction	FI_0134 and FI_0176

Table A4

9 Although on Phase 1 forms these were Phase 2 contributions.

The hearings

Display of images: 'h' document references

9. As noted in the reader's guide, the Inquiry scanned many photographic images at high resolution (600 dots per inch (dpi)) in TIFF format, to optimise the amount of detail preserved when saved electronically. There are, therefore, two versions of such an image with the same document reference number, but with the high resolution one having a suffix 'h'. Both versions were generally made available on the core participants' database; the 'h' version was always used in the Inquiry hearings.

10. The charted enlargements from the Phase 1 contributors were scanned at high resolution and given an 'h' reference.

Display of comparative exercise charted enlargements: 'A' document references

11. Each charted enlargement from the Phase 1 contributors was also electronically resized and given an Inquiry reference number with an 'A' suffix. These additional, temporary, 'A' versions allowed two charted enlargements to be displayed simultaneously at the hearings so that the evidence of one witness could be discussed by reference to the evidence of another.

Publication

12. For ease of reference to the transcripts, the comparative exercise charted enlargements have been noted in this Report with the A suffix, but the documents to which they refer are the originals, not the temporary A versions.

13. Where applicable the Report generally uses the document references which include the 'h' suffix. For size reasons, 'h' versions of images are not on the Inquiry website but it is these that are on the DVD.[10]

14. Electronic copies of the comparative exercise materials issued at Phase 1 are included on the DVD.

10 See also the reader's guide

APPENDIX 7

THE INVESTIGATION AND PROSECUTION OF CRIME IN SCOTLAND: A BRIEF OVERVIEW

The Law Officers, COPFS, advocate deputes and procurators fiscal

1. The Lord Advocate as head of the system of public prosecution in Scotland is responsible for the investigation of deaths and the prosecution of crime. The Lord Advocate's deputy is the Solicitor General for Scotland, and together they are called the Law Officers. Since devolution they are appointed by the Queen on the recommendation of the First Minister with the agreement of the Scottish Parliament.

2. The Crown Office and Procurator Fiscal Service (COPFS) is the prosecution authority. Advocate deputes prosecute cases in the High Court. They are typically experienced practising members of the Faculty of Advocates or solicitor advocates. Together with the Lord Advocate and Solicitor General they are known collectively as Crown Counsel. Procurators fiscal prosecute crimes locally throughout Scotland. Within COPFS, the Crown Agent is the legal adviser to the Lord Advocate and head of the legal staff. The headquarters are at Crown Office in Edinburgh.

Decisions to prosecute and the role of the police

3. The police carry out an initial crime investigation and submit a report to the procurator fiscal who decides whether to take any action in relation to the case. In cases involving the more serious crimes the procurator fiscal makes a report to Crown Counsel to take a decision as to whether to prosecute.

4. In deciding whether to prosecute a number of factors are taken into account. The prosecution must be in the public interest. The conduct complained of must be a criminal offence in terms of the law of Scotland. There must be sufficient evidence i.e. evidence from two independent sources as to the essential facts: that the crime was committed and that the accused committed the crime.

5. The procurator fiscal can provide instructions and directions to the police. This happens particularly in serious cases.

Murder cases and solemn procedure

6. Murder cases are prosecuted in the High Court of Justiciary under solemn procedure: trial 'on indictment' before a judge and a jury of 15 people.

7. Solemn procedure is commenced with the procurator fiscal presenting a petition to the sheriff in court. This identifies the accused and the charge under consideration. The first appearance on petition before the sheriff is normally brief and is in private. The accused may state a plea or make a statement, but in practice that is now rare. The accused may be judicially examined, i.e. questioned by the prosecutor in so far as such questions are directed to eliciting any admission, denial, explanation, justification or comment. The accused person may be kept in custody.

8. In a murder case, the procurator fiscal prepares a report for Crown Counsel's consideration and decision. There then follows a second appearance before the sheriff at which the prosecution may apply for full committal to trial.

9. Prior to a trial, and typically prior to indictment, the procurator fiscal interviews witnesses and gathers and reviews the forensic and other evidence. Some investigation is carried out by others because of the skill and knowledge required. For example forensic scientists will examine various items and offer a professional view about an item or substance. These and other specialists will present their findings in the form of a report that may be lodged in court as a production. Most often however the procurator fiscal obtains from a witness what is known as a precognition, in essence the procurator fiscal's note of what a witness is likely to say when giving evidence. This is unsigned and not sent to the witness to confirm the accuracy of what has been noted. These investigations are primarily conducted by the local procurator fiscal but under directions from Crown Counsel.

10. The result of the investigations of the procurator fiscal is a collection of precognitions, police statements and other documents. In a case that is subject to solemn procedure, these, with an analysis of the case and recommendations, are sent to the Crown Office for a decision to be taken by Crown Counsel as to whether to indict and continue to proceed with the prosecution. The material is collectively referred to as the Precognition.

11. If, after investigation, Crown Counsel instruct that there is to be a trial by jury, an indictment is prepared. The indictment is served on the accused.

The trial

12. There is no opening speech by the prosecutor or the defence. The charge is read to the jury and the trial judge will make some limited opening remarks to the jury advising them, among other things, that it is their task to assess the evidence that they will hear.

13. The prosecution leads its witnesses. The defence may test that evidence and explore other evidence in cross-examination. Once the prosecution has led its evidence the defence may lead its witnesses. The accused may give evidence but is under no obligation to do so.

14. The prosecutor and the defence make closing speeches to the jury. Thereafter the judge gives the jury directions and advice: the charge to the jury. The jury then retires to consider its verdict. The verdict of the jury is given orally by one of the jurors. The three possible verdicts are guilty, not guilty and not proven. The accused may only be convicted if at least eight of the fifteen jurors have voted for a guilty verdict.

APPENDIX 8

HMA v McKIE: WITNESSES AND TRANSCRIPTS

Witnesses

The list of witnesses in table A5 with the date(s) on which they gave evidence is taken from Mr Carle's report.[1]

Date	Name	Description
Wed 21 April	DC Douglas Wallace	Police
Thurs 22 April	Mr Michael Moffat	SOCO
	CI Stephen Heath DCI Alexander McAllister CI James Thomson DS Janet Lunardi DC James Kirkland PC Allan Stevens	Police " " " " "
Fri 23 April	Juror ill – no sitting	
Tues 27 April	DS William Shields Insp Robert Pollock DS Allister Crawford DC Joseph Quay PC Graeme McIntyre Sgt Derek Thomson PC Archibald McKinlay CI Ian Hogg PC William Jamieson PC Gary Hutchison	Police " " " " " " " Police log-keeper "
Wed 28 April	PC David Thurley	SOCO
	Alan Dewar	Advocate Depute in trial *HMA v Asbury*
Thurs 29 April	PC Anne Halliday PC Lisa Dunlop DC James Kerr PC Bryan McGeoch PC Mark Lees	Police log-keeper " Police (Production Officer) Police log-keeper "
	Mr Stuart Wilson	SOCO
Fri 30 April	Mr Stuart Wilson Mr Graham Hunter	SOCO "
	Miss Isobel Davies	Crown Office
	DS Steven Wilson PC Graham Hope PC Jennifer Ellis PC Elaine Fraser PC Kevin Maguire PC Margaret Baird PC Robert Johnstone PC Gillian Stirling PC Gary Toye PC Alan Mack PC Lynne Nicol PC Julie O'Neill PC Greg Dinnie PC Scott Telford	Police " Police log-keeper " " Police log-keeper " " " " " " " "

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Date	Name	Description
Mon 3 May	Public Holiday	
Tues 4 May	PC Gary Mitchell PC Gary Rowe PC Elizabeth Sleight PC Henry McKissock PC George Whiteside PC Anthony Parker PC Eric Garrick PC Ronald Hamilton PC Jan Ziolo PC Edward Vallance PC Wilson Nisbet DC Mark Swan	Police log-keeper “ “ “ “ “ “ “ “ “ “ Police
	Mr David Ferguson	SOCO
	Mr Keith Eynon	Forensic Scientist
	PC Patricia Faulds DS Rosalind Morris	Police “
	Mr Charles Stewart	Fingerprint Officer
Wed 5 May	Mr Charles Stewart	Fingerprint Officer
Thurs 6 May	Mr Charles Stewart	Fingerprint Officer
	Mr Terence Kent	Home Office
	PC James Brand	Police log-keeper
	Ms Fiona McBride	Fingerprint Officer
Fri 7 May	Mr Hugh MacPherson	Fingerprint Officer
Fri 7 May Defence	Mr John Wheeler	Special Constable (retired) log-keeper
	PC Scott Grant	Police
Mon 10 May	No sitting	
Tues 11 May	Ms Shirley McKie	
	Mr Pat Wertheim	Fingerprint Consultant
Wed 12 May	Mr Pat Wertheim	
Thurs 13 May	Mr David Grieve	Latent print trainer co-ordinator
	Mr Murphy and Mr Findlay’s speeches to the jury	
Fri 14 May	Lord Johnston’s charge to the jury	
	Verdict	

Table A5

Transcripts

Where a transcript of all or part of the evidence of these witnesses at the trial is available this is listed in table A6.

Date	Reference	Witness	Stage	Pages on pdf	CO_0214 section
Tues 4 May	SG_0525	Mr Stewart	examination in chief	3-49	67-73.2
Wed 5 May	SG_0526	Mr Stewart	examination in chief cross-examination	3-107 107-272	67-71.4 71.5-71.8
Thurs 6 May	SG_0527	Mr Stewart	cross-examination re-examination	3-71 71-84	72-72.6 72.7-73.2
Thurs 6 May	SG_0528	Ms McBride	examination in chief cross-examination re-examination	4-27 27-42 42-46	76-76.7 76.8-76.12 76.13-76.16
Fri 7 May	SG_0529	Mr MacPherson	examination in chief cross-examination re-examination	3-48 48-61 61-65	77-77.9 77.10-77.12 77.13-77.15
Tues 11 May	SG_0531	Ms McKie	examination in chief cross-examination re-examination	3-51 5-119 119-123	85-85.20 86-86.14 86.15-86.16
Tues 11 May	SG_0531	Mr Wertheim	examination in chief	123-181	87-87.12
Wed 12 May	CO_2746	Mr Wertheim	examination in chief cross-examination re-examination	3-51 5-166 166-169	88-88.11 89-89.21 89.22-89.23
Thurs 13 May	SG_0532	Mr Grieve	examination in chief cross-examination re-examination	3-27 27-57 57-60	90-90.6 90.7-90.14 90.15
Fri 14 May	CO_1465	Lord Johnston's charge to the jury and verdict			93-93.7

Table A6

APPENDIX 9

GLOSSARY

Inquiry terminology, acronyms and common fingerprinting terms[1]

The 2005 Act	The Inquiries Act 2005, an Act of the UK Parliament, extending to the whole of the UK. Together with The Inquiries (Scotland) Rules 2007 the legislation under which the Inquiry operated (see "the Inquiry legislation").
The 2007 Rules	The Inquiries (Scotland) Rules 2007 (SSI 2007/560) – subordinate legislation, made by Scottish Ministers under the 2005 Act.
ACE-V	Analysis, Comparison, Evaluation, Verification, a sequential process used in fingerprint analysis.
ACPOS	Association of Chief Police Officers in Scotland
advocate	Scottish lawyer, member of the Faculty of Advocates, equivalent to English barrister
advocate depute (AD)	Lawyers who prosecute criminal cases in the High Court of Justiciary in Scotland. Typically experienced practising members of the Faculty of Advocates or solicitor advocates. With the Lord Advocate and Solicitor General known collectively as Crown Counsel.
AFIS	Automated Fingerprint Identification System(s)
affirmed	Before giving evidence at the Inquiry hearings witnesses either took the oath (see below) or affirmed that their evidence would be truthful.
AFR	Automatic Fingerprint Recognition, the AFIS in use in SCRO
APRG	ACPOS Presidential Review Group
artefact	Any distortion or alteration not in the original friction ridge impression, produced by an external agent or action; any information not present in the original object or image, inadvertently introduced by image capture, processing, compressions, transmission, display, and printing.*
awards	Decisions by the Chairman under the Inquiry legislation to allow the payment of expenses of various kinds to core participants and witnesses.
bifurcation	The point at which one friction ridge divides into two friction ridges.*
case envelope	Pre-printed envelope used by SCRO for storing items received or created during an investigation, with fields for the results of comparisons and other information.
characteristics	Features of the friction ridges – also called for example minutiae, points, Galton characteristics – level 2 detail. The two main types are a ridge ending (where a ridge terminates) and a bifurcation (where it splits into two branches).
charting PC	Used by SCRO to create enlargements of a mark and a print for display in court.
clarity	or "quality": describes how well the details from three-dimensional friction ridges are reproduced in the two-dimensional impression (print or mark)
CMRT	Change Management Review Team (appointed by APRG in 2000)
comparator	A split image projection screen used to view fingerprint images
COPFS	Crown Office and Procurator Fiscal Service – the prosecution authority in Scotland

1 Some definitions shown* are taken from the glossary produced by SWGFAST, Scientific Working Group on Friction Analysis, Study and Technology (Version 3) (2011), Standard Terminology of Friction Ridge Examination, (Scientific Working Group on Friction Analysis, Study and Technology), URL: http://www.swgfast.org/documents/terminology/110323_Standard-Terminology_3.0.pdf

core	The approximate centre of a fingerprint pattern.*
core participant	An individual or organisation so designated by the Chairman under the Inquiry legislation.
CP	Core participant
CPD	The Inquiry's core participant databases. Alternatively, Continuing Professional Development
CRFP	Council for the Registration of Forensic Practitioners
dead print form	The form on which fingerprint impressions are taken from the body of a deceased person. As seen by the Inquiry the form has one impression per digit unlike ten-print forms which have a plain and a rolled impression of each digit.
determinations	Under the Inquiry legislation the Chairman's power to make awards of expenses is subject to conditions and qualifications determined by Scottish Ministers. See URL: http://thefingerprintinquiryscotland.org.uk/inquiry/30.html
delta	The point on a friction ridge at or nearest to the point of divergence of two type lines, and located at or directly in front of the point of divergence.*
distortion	Variances in the reproduction of friction skin caused for example by pressure, movement, force, contact surface.*
DNA	Deoxyribonucleic acid contains the genetic information in cells, carried in the sequence of its four constituent base units or nucleotides. The sequence of nucleotides defines individual hereditary characteristics. DNA 'fingerprinting' employs various analytical techniques to identify individuals by determining their specific DNA sequences.
dot	An isolated friction ridge unit whose length approximates its width in size.* Sometimes called an island.
elimination	Used in connection with the fingerprints of persons who had legitimate access to a crime scene, such as residents or police officers. If such a person's print matched a mark, that mark was said to be eliminated rather than identified.
enclosure	A single friction ridge that bifurcates and rejoins after a short course and continues as a single friction ridge,* sometimes called a "lake".
ending ridge	see ridge ending
exclusion	The determination by a fingerprint examiner that there is sufficient quality and quantity of detail in disagreement to conclude that two areas of friction ridge impression did not originate from the same source.*
exemplar	The known print of an individual, recorded electronically, photographically, by ink, or by another medium.* In the Inquiry Report called "print" (as compared to the unknown which in the Report is referred to as a "mark").
FBI	Federal Bureau of Investigation, an agency of the United States Department of Justice.
fingerprint	An impression of the friction ridges of all or any part of the finger.*
Form 13B	A triplicate form used by scene of crime officers and SCRO.
fragmentary and insufficient	Term used when a mark is considered to contain insufficient detail to allow a comparison and identification to take place or when a mark suffers from considerable distortion, superimposition or lacks clarity (or a combination of some, or all, of these factors).
friction ridge	A raised portion of the epidermis on the palmar or plantar skin, consisting of one or more connected ridge units.*
friction ridge analysis	Analysis of the friction ridges, also called fingerprint comparison, fingerprint identification or individualisation.
FSS	Forensic Science Service (a government owned company providing forensic science services to the police forces of England and Wales).
hearings	The 58 public sessions of the Inquiry chaired by the Chairman.

HOLMES	Home Office Large Major Enquiry System, a database used by police forces for major investigations.
HOSDB	Home Office Scientific Development Branch formerly the Home Office Police Scientific Development Branch (PSDB)
HMA	Her Majesty's Advocate, term used to describe the Lord Advocate in citations of court cases.
HMCICS	Her Majesty's Chief Inspector of Constabulary for Scotland
HMICS	Her Majesty's Inspectorate of Constabulary for Scotland
IAI	International Association for Identification
IB	Identification Bureau
identification	In some forensic disciplines, this term denotes the similarity of class characteristics, see "individualisation".*
incipient ridge	A friction ridge not fully developed that may appear shorter and thinner than fully developed friction ridges.*
inconclusive	A conclusion reached by an examiner that neither sufficient agreement exists to individualise nor sufficient disagreement exists to exclude.*
indictment	In the Scottish criminal justice system the name of the document served on the accused in more serious criminal cases. It sets out the charges about the crimes the accused is alleged to have committed.
individualisation	The determination of an examiner that there is sufficient quality and quantity of detail in agreement to conclude that two friction ridge impressions originated from the same source.*
Inquiries Act 2005	see "The 2005 Act"
Inquiries Rules	see "The 2007 Rules"
the Inquiry legislation	The statutory basis for the Inquiry – the 2005 Act and the 2007 Rules.
island	see "dot"
ISO	International Organisation for Standardisation
known print	see "exemplar"
lake	see "enclosure"
latent print, latent impression	Transferred impression of friction ridge detail not readily visible.*
level 1 detail	Friction ridge flow and general morphological information,* the general flow pattern or overall friction ridge pattern eg loop, whorl, arch – first level detail.
level 2 detail	Individual friction ridge paths and associated events, including minutiae* e.g. bifurcations, ending ridges. 'Galton characteristics', 'points' and 'minutiae' are all terms for level two features. Second level detail.
level 3 detail	Friction ridge dimensional attributes (e.g. width, edge shapes, and pores)* – third level detail.
lift	An adhesive or other medium used to transfer a friction ridge impression from a substrate.*
locus	Scene where a crime or incident took place.
Lord Advocate	The senior law officer of the Crown in Scotland. Among other responsibilities the Lord Advocate is head of the system of prosecution in Scotland.
mark	Term commonly used in the United Kingdom and some Commonwealth countries to designate a latent impression. Used in the Inquiry Report to denote a fingerprint found in connection with a crime to differentiate it from a "print".
marks worksheet	Form used by scene of crime officers and SCRO. Listed marks and result of fingerprint examination.
minutiae	see "characteristics"
morphology	The form and structure of, in this instance, living things.

MSP	Member of the Scottish Parliament
NAFIS	The National Automated Fingerprint Identification System, first introduced to all police forces in England and Wales, later developed as part of the IDENT1 system.
NAS	The National Academy of Sciences in the U.S.A.
NNS	Non Numeric Standard, a term used to describe the non numeric approach to fingerprint work adopted in England & Wales in 2001 and Scotland in 2006.
NPIA	National Policing Improvement Agency (formerly NTC)
NTC	National Training Centre for Scientific Support to Crime Investigation
oath	see “sworn”
OIG	Office of the Inspector General (authors of the 2006 report ‘A Review of the FBI’s Handling of the Brandon Mayfield Case’ and the follow-up report in 2011)
OR	Official Report – the transcript of the proceedings of the Scottish Parliament.
oral evidence	Evidence given in person by someone speaking in an Inquiry hearing.
perjury	The giving of false evidence on oath; lying while giving evidence on oath.
precognition	A statement taken from a witness by a statement taker (precognoscer) or solicitor which is not generally seen by the witness to be checked for accuracy and is not generally signed by the witness.
Precognition	The collective term applied to the volume of materials (precognitions, expert reports, documentary productions and analysis of the evidence) provided to the advocate depute in order to prepare for and to conduct a trial.
procurator fiscal	The public prosecutor in criminal courts in Scotland other than the High Court where an advocate depute prosecutes. The procurator fiscal (‘fiscal’ for short) also works with advocate deputes in the preparation of cases for the High Court.
proof	The hearing of evidence (or trial) in a civil case in Scotland.
PSNI	Police Service of Northern Ireland
Q.C.	Queen’s Counsel (senior advocate)
QD2, QI2, Y7 etc	Designations given by scene of crime officers to marks found in the investigation into Miss Ross’s murder.
quality	The clarity of information contained within a friction ridge impression.*
quantity	The amount of information contained within a friction ridge impression.*
ridge ending	Where a ridge terminates; ending ridge – a single friction ridge that terminates within the friction ridge structure.* An example of second level detail.
ridge flow	The direction of one or more friction ridges; see “level 1 detail”.*
ridge path	The course of a single friction ridge; see “level 2 detail”.*
SCRO	Scottish Criminal Record Office
SE	Scottish Executive, term used to describe both Scottish Ministers and their staff between 1999 (when the devolution arrangements for Scotland under the Scotland Act 1998 came into effect) and 2007.
SERIS–MPS	Specialist Evidence Recovery Imaging Service–Metropolitan Police Service
SFS	Scottish Fingerprint Service
SG	Scottish Government, term used to describe Scottish Ministers and their staff from 2007.
SIO	Senior Investigating Officer – lead police officer
SOCO	Scene of crime officer
SOP(S)	Standard Operating Procedure(s)
SP	Scottish Parliament
special case	Term used for the most serious crimes such as murder or rape

SPSA	Scottish Police Services Authority
spur	A bifurcation with one short friction ridge branching off a longer friction ridge.*
substrate	The surface upon which a friction ridge impression is deposited.*
SWGFAST	Scientific Working Group on Friction Ridge Analysis, Study and Technology, sponsored by the US Institute of Justice and the FBI
sworn	Before giving evidence at the hearings witnesses were sworn i.e. they made a declaration under oath that their evidence would be truthful. Witnesses were given the option to be sworn or to affirm (see above).
tenprint	A controlled recording of available fingers of an individual using black ink, electronic imaging, photography, or other medium on a contrasting background.*
terms of reference	The scope of the Inquiry set out by Scottish Ministers under the Inquiry legislation.
TIE	Trace-identify-eliminate: a police term applied to individuals who may be of interest to the police in relation to an investigation.
trial	The hearing of a case in criminal proceedings.
UKAS	United Kingdom Accreditation Service, national body responsible for assessing and accrediting the competence of organisations in the fields of calibration, testing, inspection and in the certification of systems, products and personnel.
URN	Unique Reference Number, the unique crime reference number allocated immediately the crime is made known. The URN allocated to the investigation of the murder of Miss Ross was UC01050197.
volume case	Term used for crimes such as house-breaking and motor crime, as compared to a special case.
witness	A person who gives evidence in a court case or Inquiry. At the Inquiry some witnesses gave both written and oral evidence, some only written.

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