Forensic Criminology

Andy Williams



Forensic Criminology

Andy Williams





First published 2015 by Routledge 2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

and by Routledge 711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 2015 Andy Williams

The right of Andy Williams to be identified as author of this work has been asserted by him in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British
Library

Library of Congress Cataloging in Publication Data
Williams, Andy, 1973—
Forensic criminology / Andy Williams.
pages cm
1. Forensic sciences. 2. Criminology. 3. Criminal investigation. 1. Title.
HV8073.W52537 2014
363.250941—dc23 2014005573

ISBN 13: 978-0-415-67267-2 (hbk) ISBN 13: 978-0-415-67268-9 (pbk) ISBN 13: 978-0-203-10114-8 (ebk)

Typeset in Times New Roman by Keystroke, Station Road, Codsall, Wolverhampton

Forensic Criminology

This text provides an examination of the aetiological development of forensic criminology in the UK. It links the subjects of scientific criminology, criminal investigations, crime scene investigation, forensic science and the legal system and it provides an introduction to the important processes that take place between the crime scene and the courtroom. These processes help identify, define and label the 'criminal' and are crucial for understanding any form of crime within society. The book includes sections on:

- the epistemological and ontological philosophies of the natural sciences;
- the birth of scientific criminology and its search for the criminal 'body';
- the development of early forms of forensic science and crime scene investigation;
- · investigating crime;
- information, material and evidence:
- crime analysis and crime mapping;
- scientific support and crime scene examination; and
- forensic science and detection methods and forensics in the courtroom.

The text combines coverage of historical research and contemporary criminal justice process and provides an introduction to the most common forensic practices, procedures and uses that enable the identification and successful prosecution of criminals. *Forensic Criminology* provides a framework for understanding the varieties of information work that exist within current criminal justice practice.

Forensic Criminology is essential for students of criminology, criminal justice, criminal investigations and crime science. It is also useful to those criminal justice practitioners wishing to gain a more in-depth understanding of the links between criminology, criminal investigations and forensics techniques.

Andy Williams is Principal Lecturer and Programme Area Leader in the Institute of Criminal Justice Studies at the University of Portsmouth. His main research areas

are forensic criminology; forensic techniques and their uses and interpretation in court; dangerous offenders; public protection and offender profiling. His previous books include: *The Anatomy of Serious Further Offending* (Oxford University Press, with Mike Nash); *The Handbook Of Public Protection* (Willan, co-edited with Mike Nash); and *The Myth of Moral Panics* (Routledge, with Bill Thompson).

'This long-awaited book will become part of the foundational literature in forensic criminology. It is essential reading for students, practitioners, and academics who wish to fully appreciate the interplay between theoretical/substantive criminology and the practical world of forensic science, as well as everyday investigative and legal decision-making. Fortunately for both criminal justice professionals and general citizenry alike, the gap between theory and practice has just been substantially narrowed.'

Daniel B. Kennedy, Ph.D., Oakland University and President, Forensic Criminology Associates, Inc., USA

'This is a very timely and important book for the progression of forensic criminology. It uses an impressive array of literature and sources to provide a rigorous and robust overview of the historical and theoretical contexts that underpin contemporary forensic practice and relevant criminology. It demonstrates the tangible links between the evolution of criminological thought and its utilisation in forensic practice without adhering to a formulaic description of tasks, science and technologies. Instead, this book offers an interesting and insightful overview of developments in regards to the relevant science, techniques and ideologies, which is augmented by a detailed commentary on their underlining application and development.'

Dr Paul Smith, Institute of Criminal Justice Studies, University of Portsmouth, UK

'A useful point of reference for all students of forensic criminology. This book concisely summarises historical developments and research through to current thinking in a logical framework from crime scene to court room.'

Terry Lowe, Head of Scientific Services Department, Hampshire Constabulary, UK

Acknowledgments

This has been a difficult book to write and has taken much longer than expected. Thanks go to Routledge for putting up with constant deadline changes that stretched over a year. Particular thanks go to Nicola and Heidi for their immense patience.

I would like to thank key members of the University of Portsmouth, who were open enough to see the potential in developing a forensic strand to an already impressive criminal justice department; and who also gave me the space to develop the Criminology and Forensic Studies course as well as help me through the early 'sociopathic years'. In particular I would like to thank Mike Nash, Steve Savage and Dave Russell for all their support; and Val and the admin girls who are the best and covered my ass on many occasions! Merging practical policing with academic social science is always difficult, but, with the help of ex-practitioners, it has been fun; and over the last seven years it has been great working with a good bunch of 'insiders'. Thanks go to Paul, Adrian, Brian and Claire; I hope you have learned as much from me as I have from you (academics are not entirely useless). I would also like to say a big thanks to all the undergraduate Criminology and Forensic Studies students who have passed through the door: you have been entertaining and every day remind me why I do the job I do. Particular thanks to PT and KH for all their help over the last year; a debt I can only repay through copious amounts of wine and pool (10-2)!

As ever, Eve has been my guiding force of strength; as well as providing me with the necessary breaks whilst putting up with the never-ending story that has been this book. Thanks to Mazzy and Star for constantly stopping my work at the most inconvenient times.

The ultimate academic debt once again goes to BT.

I would also like to thank the College of Policing for allowing me to reproduce Figure 6.5, which was reproduced from Authorised Professional Practice (APP) for Investigation with permission from the College of Policing Ltd. I would also like to thank Paul Smith, University of Portsmouth, and Barbara Ann O'Donoghue and Kenneth Andrews of Leicestershire Constabulary Scientific Support department, who gave me permission to reproduce the crime scene report found in Figure 9.7. Thanks also to Jonas Claesson, who kindly granted me permission to use his sketch of Heisenberg in Figure 10.6.

Contents

	List of figures List of tables List of case studies Acknowledgements	xii xv xv
1	Introduction A brave old world 1 The goal of this book 2 Defining forensic criminology 4 A case for forensic criminology 11 Outline of the book 23	1
	RT ne historical and epistemological backdrop	27
2	Constructed knowledge and the philosophy of science Introduction 29 The importance of history 30 Definitional parameters 33 Knowledge as reification 42 A brief history of the development of scientific knowledge 44 The naming of names and the creation of natural kinds 52 Methods of reasoning: induction, deduction or a third way? 56 Academic disciplines and paradigms 61 Summary 65	29
3	The beginnings of scientific criminology Introduction 66 Micro-contextual developments 67	66

	The birth of scientific criminology 74 Inventing the criminal 81 Summary 95	
4	The beginnings of forensic investigation	96
	Introduction 96 Early forensics – the washing away of wrongs 97 The development of modern forensic investigations 102 Identifying and measuring criminals 105 The reimagining of corpuscularianism – the advent of trace evidence Summary 137	132
5	The beginnings of criminal investigation	139
	Introduction 139 A social history of policing 140 Early forms of investigation 147 The pre-police 150 The development of the modern police and criminal investigations 154 Integrating science within criminal investigations 163 Summary 172	,
	RT 2 ontemporary forensic investigations	175
6	Investigating crime	177
	Introduction 177 Creating modern criminal investigations 178 What do the police actually do? 179 Understanding criminal investigations 181 Structural and organisational issues 189 Professionalising the investigative process 201 Summary 214	
7	Information, material and evidence	216
	Introduction 216 Drivers for bureaucratic change 217 Case (re)construction 227 The different forms of information 234 The efficacy of evidence 238	

	Types of evidence 240 Trace evidence 244 Exchange evidence dynamics 250 Crime reconstruction classifications of evidence 251 Summary 255	
8	Crime analysis and crime mapping	257
	Introduction 257 Definitional parameters 258 The development of crime analysis and crime mapping 259 Theoretical foundations 268 Crime analysis and mapping concepts and processes 284 Summary 298	
9	Scientific support and crime scene examination	299
	Introduction 299 Definitions, roles and structures 300 National standards, forensic strategies and submissions 304 The components of crime scene examination 308 Processing the scene 314 Summary 338	
	RT 3 ilsafe forensics	339
10	Forensic science and detection methods	341
	Introduction 341 Forensic science in the UK 341 The scientist v. the police technician 349 A case assessment model 349 Structures for analysis 352 Analysis and detection methods 356 Identification and individualisation 363 Summary 373	
11	Forensics on trial	374
	Introduction 374 Science and the legal system 374 Legal types of evidence 379	

x Contents

Scientific experts 381	
Scientific reasoning in court 386	
Hierarchy of issues and propositions 392	
Summary and future directions 394	
Notes	397
References	405
Index	432

Figures

1.1	The core components of forensic criminology	9
1.2	The elements of an integrated forensic criminology	10
1.3	A disciplinary breakdown of higher education forensic	
	science courses	21
2.1	The periodic table of elements	38
2.2	The continuous scheme of knowledge	41
3.1	The faces of physiognomy	85
3.2	The phrenology head	86
4.1	The process of scientific advancement	103
4.2	Galton's composite criminals	110
4.3	Anthropometric measuring tools	113
4.4	A Bertillon identification card	115
4.5	Measuring the head	116
4.6	Purkyne's 9-type fingerprint classification	119
4.7	Fingerprints of Charles Howard	120
4.8	Rolled impression fingerprints	123
4.9	Galton's three core fingerprint patterns	125
5.1	Pre-police modes of investigation	148
5.2	The Hue and Cry	161
6.1	The functions of criminal investigations	185
6.2	Sanctioned detection rates by offence group	190
6.3	The three levels of NIM	195
6.4	The NIM process	197
6.5	ACPO's Core Investigative Doctrine stages of criminal	
	investigations	212
7.1	Police strength 1979–2012	220
7.2	Metropolitan Police forensic science laboratory caseloads,	
	1936–1951	226
7.3	Comparative forensic caseloads, 1948–1965	226
7.4	The attrition of material	237
7.5	Trace evidence and the crime equation	244
7.6	Factors affecting Locard's principle of exchange	246

xii List of figures

7.7	Indirect transfer of fibre evidence	248
7.8	Evidence classifications	253
8.1	Core concepts of decision-making models	279
8.2	The rules of crime pattern theory	283
8.3	Extraction and analysis	285
8.4	The crime analysis process	287
8.5	The SARA problem-solving model	290
9.1	SSD units	303
9.2	SSD roles	303
9.3	The scientific method	312
9.4	Maintaining the chain of continuity	315
9.5	The ABC approach	317
9.6	Payne-Whiting forensic link	323
9.7	The crime scene report	335
10.1	Police forensic spend in England and Wales, 2005–2011	348
10.2	The case assessment and interpretation model	350
10.3	The forensic science development framework	354
10.4	The electromagnetic spectrum	359
10.5	Damaged fingerprint	367
10.6	The Heisenberg Uncertainty Principle	370
11.1	Opinion expressions of forensic scientists	386

Tables

1.1	Times of investigative training courses	12
1.1	Types of investigative training courses The forensic family	12 15
2.1	Four laws of scientific method	36
2.1	The interdisciplinary universe of forensic criminology	63
4.1	The themes of <i>Hsi Yuan Chi Lu</i>	99
4.1	Key players in forensic science	104
4.2	Bertillon measurements	
4.4	Objects for the investigation of dust	112 134
4.4		
4.5	Eyebrow dust and occupations Micro-chemical analysis	135
5.1		136
5.1	The work of early crime laboratories	165
6.1	Early forensic investigative textbooks How crimes are detected	172
6.2		187
	Police forces in England and Wales NIM minimum standards	193
6.3		198
6.4	Limitations of the Ripper investigation	204
6.5	Police governance legislation	207
6.6	The PIP levels of investigation	210
7.1	Inter- and post-war forensic developments	222
7.2	Categories of physical material	243
7.3	Forms of evidence dynamics	252
8.1	Computer databases	264
8.2	The core concepts of rational choice	276
8.3	Classification of situational precipitators of crime	281
9.1	Possible outcomes of crime scene processing	313
9.2	Crime scene search methods	327
0.1	Number of forensic science cases, 1991	343
0.2	Number of forensic science exhibits, 1991	344
0.3	Ratio of number of exhibits to number of cases, 1991	345
0.4	Core analytical techniques	360
0.5	Class and individual characteristics	365

xiv List of tables

366
375
390
391

Case studies

1.1	Zahid Mubarek	14
2.1	Unnecessary deaths - Victoria Climbié and Peter Connelly	31
7.1	Sally Clark and bad interactive kinds	230
7.2	Sarah Payne and the Coolham shoe	247
8.1	Working-class criminality and the environment	273
9.1	Batman and contamination	320
9.2	Contamination and Sarah Payne	322

Introduction

A brave old world

The subject of criminology is regarded as both fascinating and enthralling. The excitement and apparent sexiness around the notion of crime and deviant behaviours is of course not new, neither could it be called monolithic. Burke (1994:149-177) highlights how, in early modern Europe, villains revealed the standards of the culture in which they belonged. Furthermore, public executions were not only part of the repertoire of public rituals but they were also endowed with a carnivalesque atmosphere (Burke, 1994:196-197; also see Foucault, 1977). Over the last 150 years, the excitement and interest in crime and the criminal have not only been linked but also matched to ideas and developments around forensics. Indeed, the mix of crime, criminals and forensics is so potent that it has spawned vast educational, economic, and technological industries that have increasingly influenced our social, cultural and political worlds. When people meet individuals who are criminologists or practitioners that deal with offenders, a common response is, 'oh criminology is very interesting'. Of course, when asked for a cogent augmentation of this statement, further elucidation is often lacking or is distinctly opaque. Criminology does not simply deal with crime and horrific acts of behaviour against human beings; it also has to deal with a broad gamut of social problems - from poverty and injustice (Wilkinson and Pickett, 2010; Dorling, 2011; Jones, 2011) through substance misuse (Stevens, 2011) and violence (Flannery et al., 2007) to mental health issues (Maden, 2007). Despite such issues being intrinsic to much that is studied within criminology, people still vicariously enjoy a good murder mystery or hearing about a violent serial sexual killer. Indeed, serial sexual killers often draw the most attention from the general public and students, with countless undergraduate dissertations entitled 'Mad or bad' or 'Theoretical explanations of serial killing'. It is actually quite surprising that the prevalence and reductive repetitiveness of these issues does not result in supervisors becoming killers themselves! Within the last 50 years, however, the apparent seductive nature of the criminal world has influenced a dramatic expansion in the three interlinked areas of criminal investigations, forensic science and criminology. It is not only cultural artefacts

such as books, movies and TV shows that have proliferated in these years (can any reader remember when there were no crime, police, forensic or profiling dramas on TV?); educational programmes, professional bodies and organisations, and the resultant 'exploitative culture' (Cohen, 1972:139) have rapidly expanded during this period as well. The underlying thesis in Wiener's *Reconstructing the Criminal* (1994) suggests it is not possible to think about crime and offenders and the subsequent societal responses without thinking about sociocultural influences. Furthermore, what is designated as a crime as well as components of physical evidence, the narrative of *crimes* and the resultant understanding of offenders and their behaviour are all determined by social and cultural discourses which intersect the areas of criminal investigations, forensic science, the legal system and criminology. This book is about these four areas.

The goal of this book

This book is intended as an introductory text for those wishing to develop a critical theoretical and applied understanding of forensic criminology, an interdisciplinary field within the social science subject of criminology. It attempts to introduce both students and practitioners to some of the core ideas, theories/ concepts and issues that link four different academic subjects and professions criminal investigations, forensic science, the legal system and criminology. It critically examines some of the core processes that take place in these four areas and assesses the usefulness that forensic criminology has for the various processes from crime scene to courtroom. In doing so, it discusses the underlying investigative and forensic epistemologies that will aid those who wish to undertake casework in the wide variety of occupations that currently exist within the criminal justice sector, and in related occupations outside of the sector. The core objectives are to provide social science students with a meaningful understanding of the interplay between forensic science and the legal system; and, through the lens of a criminological analysis, demonstrate the effects of forensic science on the criminal justice system and understandings of criminality. In recent years the market for forensically focused science and social science undergraduate courses has increased dramatically (see below for an expansion on this issue). Forensic elements have been relatively easy to develop and drop into the traditional natural science degree programmes; for example, in the last five years, lots of biology departments in UK universities have created 'forensic biology' or 'forensic science' degrees. What has been more difficult is creating forensic units for social science subjects such as criminology. The reasons behind these difficulties are numerous and include: jurisdictional boundary fighting over the ownership of forensics (Abbott, 1998 and 2001; Cohen, 1985); venomous criticism by specific academic disciplines, such as sociology and criminology, of any subject that could be construed as being even vaguely positivistic; and, finally, the lack of knowledge of forensic specialisms within criminology.1 Despite these inherent difficulties, what has been quite remarkable in the last seven years is the huge