Contents

Preface xv
Online Resources xvii

1 What is Policing? 1

2 Historical Origins and Development of the Police in England and Wales 21

3 Police Powers: The Legal Framework 43

4 Who Guards the Guards? 67

5 Community Policing 91

6 Police Culture 115

7 Policing Diversity 141

8 Global and Transnational Policing 165

9 Criminal Investigation and Policing 185

10 Plural Policing 205

11 Surveillance, IT and the Future of Policing 229

12 The Future of Policing 257
11

SURVEILLANCE, IT AND THE FUTURE OF POLICING

CONTENTS

Learning objectives 231
Key terms 231
Introduction 231
Technology in context 232
CCTV, ANPR and traffic monitoring: benevolent gaze or Big Brother? 233
Assessing the impact of CCTV 235
CCTV and the electronic gaze 236
Traffic policing and technology 237
Eyes in the sky: police drones 241
Crime mapping, intelligence and the regulation of policing 241
Crime mapping and policing 242
Intelligence-led ‘hot spots’ policing 244
Technology and the routines of police work 244
The impact of technology on policing and police work 246
The surveillance society? 247
Watching the police 248
Micro-managing police performance 249
Changing police culture 250
Conclusion 251
Chapter summary 252
Self-check questions (with answers at the back of the book) 253
Study questions 254
Annotated further reading 254
Annotated listings of links to relevant websites 255
Annotated links to journal articles 255
LEARNING OBJECTIVES

This chapter explores the changing role of technology in contemporary policing. The impact of surveillance technology on crime and social relations is outlined and the implications that it has for policing in broader terms of social regulation are critically assessed. In particular, the chapter aims to:

- consider the extent to which technological developments transform police work, with particular reference to CCTV and road traffic policing
- explore the implications that crime mapping has for intelligence-led policing and the communication of crime risks
- examine the impact of surveillance technology and information systems on the character of police work and the extent to which this curtails individual officer discretion.

KEY TERMS

‘hot spots’ policing; CCTV; communication systems; discretion; information and intelligence; police culture; surveillance; supervision and traffic policing

INTRODUCTION

Glossy visions of high-tech law-enforcement officers have long been a staple of fictional representations of police work. Perhaps the most prominent example of this genre is the CBS television show *CSI: Crime Scene Investigation* in which homicide detectives, assisted by technical support staff, use state-of-the-art technology and powerful databases to analyse crime scenes and conclusively identify the killer. If kids’ television cartoons of a certain vintage often ended with the villain ruefully lamenting that ‘I’d have gotten away with it if it wasn’t for those meddlesome kids’, it now seems as though science and the scientist are the bête noir of the over-confident murderer. The CSI genre, which includes a number of factional or infotainment-style programmes that blur the reality/fiction boundary, can be criticised on a number of grounds. As with much cinematic or television crime and policing shows, it is an easy criticism to point out that ‘real’ cases are rarely resolved within the timeframe of a one-hour show. Moreover, guilt, or innocence, often cannot be established as a certain verifiable fact, and even scientific evidence requires interpretation and explanation rarely conveyed in television programmes. The role of technology in policing and its impact upon routine police work is considered critically in the discussion below. In the concluding section...
it is argued that the fictional representations reflect a more general tendency toward technological determinism, which assumes that policing is fundamentally transformed by expanded technological capacity. Instead, enhanced information and communications technology needs to be considered in the context in which it is deployed and that police culture, for example, is able to resist and transform some of the potential implications of new technology.

**TECHNOLOGY IN CONTEXT**

The ubiquity of information and communication technology in media representations of policing also marks them out from ‘real’ police work, which often continues to be a relatively low-tech business, even when it comes to investigations of serious criminal incidents. Innes’s (2003) study of murder investigations found that the collection of forensic evidence was regarded as important to police officers, not least because of the ‘symbolic’ capital it brought in terms of persuading the Crown Prosecution Service to press charges. However, the value of scientific tests, DNA profiling and so on was limited and officers regarded it as important to also seek other forms of evidence in order to build a successful case. One limit on the value of scientific scene-of-crime analysis was that it took three months to get conclusive results to some of the tests used, which meant that investigating officers treated them tentatively (Innes, 2003). The need to understand scientific procedures in the context of real-life investigations demonstrates the need to avoid technological determinism, as was pointed out in Chapter 9.

That investigations do not proceed solely along the lines of the technical capacity of scientific analysis or ICT processing was further demonstrated by the Macpherson Inquiry (1999) into the police investigation of the racist murder of Stephen Lawrence in London in 1993. Although attention has focused on Macpherson’s findings about institutional racism, failures in many aspects of the police investigation were also identified. Technological developments and the experience of previous investigations had led to the creation of the HOLMES (Home Office Large Major Enquiry System) computer system, which allowed for information to be cross-referenced and data to be retrieved. However, it was not used in the early stages of the investigation because the Deputy Investigating Officer was not trained to use it (Macpherson, 1999: 14.5). The frailty of human operatives of surveillance and IT systems is noted at various stages in the discussion that follows.

Although the current reality of policing does not mirror the technological wonders of many ‘cop shows’, politicians and policy-makers have long sought to improve the technological capacity of the police service. More effective communication systems have been regarded as an important prerequisite of improved police performance. The introduction
of Unit Beat Policing in Britain in the 1960s, for example, depended on the technology of
two-way radios which allowed patrolling officers to communicate more freely and meant
that the beats no longer had to be drawn around the location of police telephone boxes
as they has previously done (Rawlings, 2002: 200). More recently efforts to reduce the
impact of administrative duties have focused upon developing secure laptop computers
that would allow officers to complete crime reports and the like without returning to
police stations and disappearing from public view. Not only would this lessen the time
officers take to complete routine administrative tasks, it was claimed, it would also mean
that officers could complete more procedures from their patrol cars and thus promote a
visible police presence on the streets. Handheld computer technology, social media and
new techniques to harness web-based information offer the capacity to transform the
nature of police work (Innes and Roberts, 2011).

As with IT projects more generally, it should be remembered that the promise offered
by such developments has often been greater than the impact in reality, although this
impact continues to unfold. Nonetheless, the potential of hi-tech solutions to routine
problems of police work and crime investigation continues to be emphasised. The fol-
lowing discussion reviews some of the main features of emerging technologies and
considers their impact on the nature of police work and the broader dimensions of polic-
ing as a process of social regulation. Particular attention is paid to continuing debates
about the role of surveillance technology, such as closed-circuit television (CCTV) and
automatic number plate recognition (ANPR) and traffic monitoring systems. The use
of crime mapping as a tool in intelligence-led policing is then considered before the
chapter concludes by reflecting upon the impact of these technological developments
upon police work.

CCTV, ANPR AND TRAFFIC MONITORING: BENEVOLENT GAZE OR BIG BROTHER?

In 2009 a House of Lords select committee reported a widely-held view that the UK
was the world leader in the use of CCTV. The report noted that during the 1990s, 78
per cent of the Home Office crime prevention budget was spent on CCTV and that
in the decade up to 2006, £500 million of public money was spent on this form of
surveillance – the amount spent by private corporations and individuals was not
recorded (House of Lords, 2009). Several years earlier, the British Information
Commissioner warned of the danger of ‘sleepwalking into a surveillance society’ and
that the exponential growth of CCTV capacity raised serious concerns about civil lib-
erties (Evans and Mostrous, 2006). The Commissioner noted that private companies
monitored individuals’ online shopping patterns in order to develop consumer profiles
and enable highly-targeted advertising, that radio frequency identification (RFID) tags
are increasingly inserted into products allowing them to be monitored when in transit,
and that an increasing range of private and public agencies were developing profiles of their customers and clients. Parents, for example, were being required to pay for their children’s school meals via electronic cards, which would, among other things, allow the local education authority to monitor the eating patterns and habits of pupils. At the forefront of this panoply of monitoring and surveillance infrastructure is CCTV, a field in which Britain has become a global leader, with an estimated 20 per cent of all the world’s cameras. In 1999, Norris and Armstrong suggested that an individual living in urban Britain going about their routine working and social life might be captured by up to 300 cameras in 30 different systems during the course of a single day. CCTV was employed at that time on residential estates, transport networks, retail outlets, football stadia, by police and town-centre managers, in schools and hospitals, in telephone boxes, and at cash machines, petrol stations and in car parks. The ubiquity of CCTV was such that, Norris and Armstrong (1999: 42) argued, it was unlikely that an individual could avoid its electronic gaze.

Since then the suppliers of CCTV have developed new inroads into the domestic security industry such that relatively cheap systems can be bought to protect private property, which suggests that the public are prone to be captured by them. The development of ‘dash cam’ recorders has meant that similar systems are now operated and controlled by private citizens on the roads; the impact of such systems on policing is considered later in this chapter. One major limitation of CCTV is that it has tended to be a passive presence, able to record or monitor events but not necessarily an effective means to intervene. Indeed, Norris and Armstrong (1999: 166) observed CCTV operations for 600 hours, during which time police or other personnel were deployed to intervene in a situation on just 45 occasions. While their study suggested a largely passive role for CCTV, it seems that the development of interactive systems might change the way in which cameras are used. Although the coalition government continued to acknowledge the crime prevention and detection possibilities of CCTV (and ANPR) technology it has also emphasised the importance of civil liberties and individual privacy. To these ends the Protection of Freedom Act 2012 requires the development of a regulatory code of practice and the appointment of a Surveillance Camera Commissioner to oversee implementation. The Home Office (2013: 7) published a consultation document and described its central ethos in the following terms:

Public confidence that a surveillance camera system is being used appropriately, without disproportionate interference with the right to private and family life, is seen as being largely dependent upon the transparency, integrity and accountability of the system operator. In the draft code of practice, the government has drawn a parallel with the well-established concept of policing by consent and described the purpose of the code as helping to establish surveillance by consent.
assessing the impact of CCTV

Debates about the impact of CCTV have focused on a range of issues, most notably its effectiveness in terms of crime prevention and deterrence (see Box 11.1). Although it seems that there is little definitive evidence that CCTV is effective in preventing crimes in general terms, studies have shown that it can be useful when used in bounded or limited terms, such as the monitoring of crime in car parks (Gill and Spriggs, 2005). Other debates have concentrated on civil liberties issues or the release of deviant sexual behaviour or footage of dangerous reckless driving that have been broadcast by the entertainment media. As Jewkes (2015) has noted, CCTV images have become a staple of a genre of reality television crime programmes that have often relied upon the thinnest of public interest grounds to defend the broadcast of salacious or gratuitous footage.

Box 11.1

Deterrence

The notion that crime prevention initiatives such as CCTV have a deterrence effect is widely claimed, and often a matter of ‘common sense’. Just as with the deployment of officers or members of the extended police family on high-visibility patrol is valued since it dissuades people from taking advantage of opportunities to commit crime, so too crime prevention is often predicated on signalling the risks of offending. The counterpart to the deterrence effect is the notion of displacement, the notion that crime is not wholly prevented but is redeployed to other places, other times, or other victims or that offenders turn their attention to other forms of crime. Although there is evidence that displacement can limit the impact of situational crime prevention, such as CCTV, most of the research evidence suggests that deterrence reduces the overall level of crime and that only a proportion is displaced.

The impact of CCTV on policing can be considered in terms of the relatively narrow work of the public police and, more broadly, in relation to policing as a process of social regulation. First, the effectiveness of CCTV as an aid to crime detection is considered. Photographic records of offenders have been used by detectives since the late-nineteenth century and efforts to develop effective databases of these images began with card indexes during the same period (Norris and Armstrong, 1999). Since the 1960s, British television shows have used photofits, video stills and e-fits of suspects in an effort to gather information about suspects from the general public, and CCTV footage has become a staple ingredient of such programmes. The overall impact of CCTV as an aid to crime detection is difficult to gauge. Footage captured by cameras has been
pivotal in some high-profile cases, although the actual identification and arrest of offenders has often arisen from traditional low-tech policing, even where hi-tech developments might have contributed to the process. A good example of this followed a series of bombings in London in 1999, aimed at gay and minority ethnic communities. During April of that year three nail bombs exploded, the first in Brixton, followed by a second attack in Brick Lane at the heart of the Asian community in the East End of London, and a third on the Admiral Duncan, a pub in Soho associated with the gay community. During the last of these attacks, three people were killed. The extent of CCTV in the capital city was evident in the investigation of these attacks, as the Metropolitan Police analysed thousands of hours of footage. Facial recognition software meant that detectives could interrogate millions of images and identify a person caught on camera in the vicinity of each incident prior to the explosions. To that extent CCTV and the computer software that supported the investigation added capacity to the police investigation that would not otherwise have been possible. Subsequently, however, the perpetrator, David Copeland, was identified following a tip-off in response to publication of photograph enhanced from the CCTV images. Surveillance and information technology enabled and accelerated the course of the investigation, but it continued to rely upon information supplied by observant members of the public.

Home Office sponsored research has shown that police officers regard CCTV images as a major source of intelligence in the investigation and routinely seize footage from public and private systems in the vicinity of a criminal incident (Levesley and Martin 2005). In addition to enhancing the capacity of the police to identify offenders, CCTV also expedites custody procedures since suspects are more likely to admit offences once presented with CCTV-derived evidence, although presumably the time spent collecting and sifting CCTV evidence needs to be offset against that saved once in the custody suite.

**CCTV and the electronic gaze**

In addition to evidential benefits, CCTV is also heralded as an effective means to deploy officers in the pursuit of offenders or to tackle particular crime and disorder problems. In this context, the power of CCTV to observe and monitor public space and to register problem behaviour has been enhanced by computer software that can identify incongruous activity that might warrant closer police attention. The observational capacity of CCTV was, in its early incarnations, limited by the ability of operatives, who often tended to be poorly paid and under-motivated, to physically watch over the images presented to them on screens in the control room (Wakefield, 2004). Subsequently, however, the development of algorithmic systems that can automatically sense movement that might be a cause of concern offers a significantly more enhanced capacity for CCTV
to direct the deployment of resources to scenes of crime, disorder, traffic congestion or one of the myriad scenarios anticipated by cameras (Norris and Armstrong, 1999). Nonetheless, studies of police work do not suggest that officers are often deployed to situations identified by CCTV cameras. While the police control room plays an important role in determining the work that officers do, it seems likely that this continues to be shaped predominantly by telephone calls received from members of the public (Bayley, 1994). The benefits of CCTV in terms of the operational deployment of officers appear to be stronger in specific instances than they are in general terms. CCTV seems to play little overall role in identifying general crime problems as they occur. Many CCTV cameras are not operated directly by police staff, or by operators who have dedicated means to communicate with police services (beyond the normal phone system). Many CCTV cameras are not deployed for general reasons to detect crime problems in broad terms. It was for these reasons that Norris and Armstrong (1999) found so few deployments arising from the many hours spent observing the operation of CCTV systems.

While CCTV does not play a significant role in determining the deployment of officers on routine duties, it clearly is important to the conduct of particular policing operations. In the policing of football matches, for example, CCTV is widely used to direct officers to particular pressure points where crowds have congregated or to monitor for those individuals banned from grounds following incidents of hooliganism (Garland and Rowe, 1999). Police officers suggested to Levesley and Martin (2005: 4–5) that CCTV was most useful in dealing with public order incidents, cases of assault and theft, and was typically used in town centres on Friday and Saturday nights as pubs and clubs closed and large numbers of people spilled onto the streets. As with claims about the crime prevention properties of CCTV, it seems that the potential benefits for the police service also need to be treated with some caution. It seems that there are some evidential benefits to be gained, but these depend upon the police being able to recognise the images of offenders and the quality and forensic value of images captured on systems that vary in quality enormously. In terms of the ability of CCTV to assist in operational terms it also seems that caution is required; research into the demands on police time rarely suggest that much crime or disorder is spotted on CCTV and then ‘passed’ to the police.

**Traffic Policing and Technology**

A more recent technological development has been ANPR systems, whereby digital cameras record vehicle registration plates and trawl databases such as the Police National Computer in an effort to identify vehicles that are reported stolen or are otherwise ‘of interest’ to the police. ANPR was first used in Britain as part of the development of a ‘ring of steel’ around the City of London, whereby technological and physical interventions were installed in an effort to safeguard London’s financial centre.
from terrorist attack (Goold, 2004). ANPR has not been subjected to the same degree of public debate as CCTV, as described above, or the use of traffic monitoring (speed cameras) systems, discussed below, which may be because it has widely been presented as a straightforward law-enforcement tool that has no broader implications for the population at large. Box 11.2 demonstrates the way in which Thames Valley Police explains the use of ANPR.

**Box 11.2**

Automatic Number Plate Recognition – an Effective Policing Tool to ‘Deny Criminals the Use of the Roads’

Most criminals rely on vehicles to commit crime. Automatic Number Plate Recognition (ANPR) is a tool designed to make it far more difficult for them to use vehicles without being detected.

As a vehicle passes through an ANPR camera, it takes an image of the number plate. Those details are then fed into a system which checks them against sources such as the Police National Computer (PNC), Driver and Vehicle Licensing Agency (DVLA), Local Force Intelligence systems and motor insurers databases. If the number plate is matched to one of the sources, the ANPR equipment will sound an alert.

Vehicles which have sounded an alert will then be stopped by intercept team officers for further investigation. Only vehicles that are highlighted by enforcement agency databases will be stopped, so no law-abiding citizen has anything to fear from ANPR operations. Unlicensed or uninsured vehicles are likely to be seized on the spot by ANPR equipped officers.

ANPR can be used to gather intelligence on known criminals or for post-incident crime investigation as well as for running pro-active operations using dedicated intercept teams.

ANPR cameras are located in mobile units (vans), in Roads Policing patrol cars, at dedicated fixed sites and via Closed Circuit Television (CCTV) schemes in urban areas.

ANPR cameras are NOT ‘safety’ cameras, so are not used in Thames Valley to catch speeding or otherwise law-abiding motorists. Nor are they used to generate revenue for the government or other agency.


While APNR might be presented as a neutral technology, it has raised concern about civil liberties issues and the privacy of individuals. Although the recording of vehicle registration details might not, in itself, amount to the collection of personal information, concerns have been raised that the systems can also capture images of people present in vehicles, which might bring ANPR within the remit of data protection legislation. Moreover, while ANPR cameras are often deployed in identified static positions, in other circumstances cameras might be used covertly, which means that they would require permission under the terms of the Regulation of Investigatory Powers Act (RIPA) 2000, which was discussed in Chapter 3. The Scottish Chief Surveillance Commissioner (Office of Surveillance Commissioners, 2006) suggested that the capacity of ANPR systems to capture information indiscriminately means that they would not meet the tests of proportionality required by RIPA. The use of ANPR represents another context in which police act as knowledge or information brokers in regulatory networks that span the public and private sector (see example in Box 11.2) by trawling motor insurers’ databases for information. In 2013 the pressure group Big Brother Watch (2013) published a report detailing the widespread use of surveillance technology by private investigators contracted to the public sector but not subject to RIPA provisions. Clearly proposals for a code of practice might address this legal blind spot, which also further demonstrates the plurality of policing as a network of social regulation.

Traffic monitoring systems, particularly speed cameras, have featured in much media debate about the proper focus of policing and law-enforcement in Britain in recent years and reveal much about the ways in which crime is socially constructed. Speed enforcement cameras were introduced to British roadways from the early 1990s, although it was often found that cameras were not operative since forces either did not put film into them or did not monitor the pictures (Corbett, 2000). Debates about speed cameras have become a media staple in recent years, with concerns focusing upon the effectiveness of cameras in reducing speed, arguments about the revenue-raising role of cameras, and the impact that cameras have upon law-abiding members of the public. Corbett and Caramlau (2006) suggested that, media campaigns notwithstanding, around 75 per cent of people support the use of cameras, although concerns persist about the ‘stealthy’ use of cameras (i.e. those deployed in ‘hidden’ ways or when not adequately signposted) and the notion that cameras are used to raise revenue rather than to target speeding motorists in high-risk areas. These latter concerns suggest that the use of speed cameras have the potential to undermine police legitimacy, especially when co-joined with perceptions that the use of cameras has accompanied a reduction in the deployment of ‘real’ police officers. The House of Commons Transport Committee (2006) noted that technological innovation ought to enhance, rather than usurp, the role of the police officer. The Committee suggested that continuing technological developments would see a range of new measures, including ‘time-distance’ cameras (which record the time at which vehicles enter and exit a stretch of road and so calculate average speed),
“intelligent road studs” (planted into the road surface to gather information about road and weather conditions, traffic flow and speed) and ‘intelligent speed adaptation’ (which uses GPS and digital mapping to control the speed of vehicles and ensure compliance with speed limits).

The tone of media coverage reveals much about the cultural status of private cars, crime and policing in contemporary Britain. Although car ‘accidents’ (itself a loaded term) are usually associated with excessive speed and result in far more deaths than homicide, speeding continues to be socially constructed as a non-serious offence (Corbett, 2000).

Legal sanctions against the use of mobile phones while driving were strengthened in 2017, and efforts to make the use of mobile devices normatively unacceptable have been a feature of campaigns against this significant cause of harm. The prospects of extending the technological enforcement of traffic law runs the risk of criminalising sections of society that would not otherwise have negative contact with the police. Concern about the impact of traffic policing on relations with the public is one factor that explains the low priority police officers have often given to traffic policing (Waddington, 1999a).

The deleterious impact of road policing on the legitimacy and authority afforded to the police by ‘respectable’ middle-class society has been noted since the expansion of car ownership in the middle of the twentieth century (Loader and Mulcahy, 2003: 114). Figure 11.1 shows that media concern about these developments is also long-standing. As early as the 1920s, Emsley (1996: 147) noted that

Figure 11.1 Policing the motorist, circa. 1905 (Doran, 1990: 36, cited in Clapton, 2004)
The development of the motor car, and its increasing availability to middle-class families, was, even by this date, bringing members of a social group, who hitherto had had virtually no contact with the police, into regular conflict with them. In the summer of 1928 the Home Secretary made a ‘pressing personal appeal’ to all chief constables that they should urge caution on their men in the way they behaved towards the public on the roads. Stressing the Bobby’s unique qualities, his good humour and impartiality was an additional way to seek to check the new and damaging confrontations between policemen and members of the middle class on the roads.

While pleas for impartiality in the 1920s seem to be thinly-veiled requests for officers to exercise their discretion to the benefit of middle-class motorists, a key concern about the use of technology to enforce traffic legislation is that that it is not possible to turn a blind eye when the observer is an automated electronic system. The impact of technology on the exercise of police discretion is discussed more fully in the penultimate section of the chapter.

EYES IN THE SKY: POLICE DRONES

The military have used drones – lightweight ‘unmanned aerial vehicles’ (UAVs) – in various operational contexts in the recent past, including in Iraq and Afghanistan. The extension of this technology to civilian use, by police and other agencies, has been noted in the USA and to a limited extent in Britain. Drones represent an extended capacity for surveillance that is rapidly mobile and can be used covertly at a greater distance from subjects than can CCTV cameras. The campaign group Privacy International reported in 2012 that four police services had tested UAVs but had reported mixed results (Ardizzone, 2012). A European Commission (2012) report suggested that the use of UAVs was likely to expand in a range of public and commercial activities and could be of use in circumstances where safety concerns precluded the deployment of people, such as into volcanic ash clouds or in the aftermath of chemical or nuclear accident. In law-enforcement, UAVs could be used in crowd and traffic control, detection of offenders or the more generally in the prevention of crime. Concerns about the use of ‘drones’ has tended to focus on safety issues – a trial by Merseyside ended with a UAV crashing into the river Mersey in 2012 – and on civil liberties implications. Studies have suggested that they have disproportionately been used against minority and marginalised communities and raise fundamental concerns about regulation and the right to privacy (Finn and Wright, 2012).

CRIME MAPPING, INTELLIGENCE AND THE REGULATION OF POLICING

The technological developments described in the previous section have related to various innovations intended to regulate and survey behaviour in a range of public and
private contexts. By various means they are intended to exert a deterrent effect on those who might otherwise commit crime or antisocial behaviour. As has been noted, they have significant impacts on policing and police work, but these are not their primary aims. In the following discussion the focus shifts to technological regimes that have been introduced within the police environment in an effort to improve the efficiency of the police organisation, to make the service more accountable, and to develop the capability to tackle crime more effectively.

**crime-mapping and policing**

Criminological research has long shown that crime is not randomly distributed, but tends to impact disproportionately on certain populations and in specific places. A plethora of victimisation surveys have demonstrated that just as a minority of offenders commit a disproportionate number of offences, so too a minority of people and locations experience relatively high levels of crime. In very narrow terms this criminological canard has formed the basis for the development of focused and targeted policing that uses computer software and other technology in an effort to map patterns of crime and so to enable a more effective deployment of police resources (see Figure 11.2). As with other technological developments described in this chapter this does not amount to a qualitatively new form of policing, since officers have tended to rely upon conceptual maps of local areas informed by knowledge of crime problems and offenders (Keith, 1993). While collating information on the characteristics and habits of ‘nominals’ (i.e. known offenders) has always been central to police work, developments in ICT have transformed the capacity to develop intelligence about local problems and to more effectively respond to them. Much of the recent impetus to develop policing along these lines developed from a growing realisation in Britain and elsewhere in the 1970s and 1980s that traditional police patrol work appeared to have little impact upon crime rates. An assessment of traditional policing strategies of that era led Bayley (1994: 3) to the withering – and much cited – conclusion that:

*The police do not prevent crime. This is one of the best-kept secrets of modern life. Experts know it, the police know it, but the public does not know it. Yet the police pretend that they are society’s best defence against crime ... This is a myth. First, repeated analysis has consistently failed to find any connection between the number of police officers and crime rates. Secondly, the primary strategies adopted by modern police have been shown to have little or no effect on crime.*

One response to this counsel of despair was to use information technology such that police could collate data about criminal offences and use geographical information systems to pinpoint locations and so produce local maps that enabled the identification of...
particular ‘hot spots’ (areas that were particularly criminogenic). Particularly high-profile applications of such approaches were developed in many American cities in the 1990s; the development of the Compstat system in New York in the 1990s proved particularly influential as it was widely imitated by other police departments in the USA and was lauded by politicians, policy-makers and academics alike (Silverman, 2006) (see Box 11.3).

Box 11.3

The Panopticon

Derived from the prison designs developed in the eighteenth century by Jeremy Bentham, the term ‘panopticon’ refers to a system whereby the maximum degree of surveillance is derived from the minimum deployment of resources. In the context of Bentham’s plans for the ideal prison, this related to a system whereby prison cells were organised in tiers around the circumference of a circular prison, in the middle of which stood a tower. Each cell was open to surveillance by only a few guards who were located out of sight at the top of the central tower. In this way prisoners knew that they could be observed at any time, but were unable to know precisely when, or if, they were actually watched. One result of this efficient system of control was that prisoners internalised the disciplinary regime such that they regulated their own behaviour in the expectation that the prison guards were keeping them under observation.

The development of ‘high definition’ policing (McLaughlin, 2007a: 124) that Compstat and other forms of crime mapping enable has a number of implications. First, there is some evidence that it is an effective strategy in law-enforcement terms. While some have argued that other factors also played a significant role in reducing crime levels in New York City in the 1990s (Bowling, 1999; Stenson, 2001), a more general analysis of hot spots policing programmes in the USA concluded that there was a positive impact in reducing crime, and that this was not at the expense of displacing crime problems to other areas (Weisburd and Braga, 2006: 232–4). However, concerns about other aspects of this form of targeted policing suggest that such success comes at a price when accompanied by aggressive tactics, such as those associated with zero tolerance policing. In the American context, Rosenbaum (2006) cautioned that ‘hot spots’ policing is often associated with aggressive enforcement and that this can weaken police–community relations and undermine legitimacy. Furthermore, Rosenbaum (2006) argued that these technological approaches redefine crime problems in relatively narrow terms and that a geographical perspective of crime problems risks ignoring the broader dimensions of, for example, illegal drug dealing.
intelligence-led ‘hot spots’ policing

The same technology used to map crime for the purposes of intelligence-led policing operations has been extended, in the USA, to develop information for the public about criminal incidents and patterns in particular neighbourhoods. Since 2011 the Home Office has provided online crime maps that allow the public to obtain information about incidents and trends in their local area. A host of incidents are displayed and, in some cases, extended details are provided including the outcomes of police investigations, where these are known. Other initiatives include police using smartphone apps to communicate with victims and the public and the use of social media to report local issues to the public. Enabling the public to access authoritative data about crime promises to empower citizens to effectively assess the performance of local police and Police and Crime Commissioners through the ‘democratisation’ of knowledge.

In practice, of course, the project is more difficult. The local crime maps provide no contextual information and fail to convey the ways in which categories and types of crime are open to interpretation and do not represent natural or objective categories. The crime data presented does not speak for itself. As Ratcliffe (2002) has outlined, such representation raises serious ethical concerns about privacy, the risk of vigilante activity and the broader impact that such representation of crime problems can have on communities in terms of perpetuating negative perceptions that can impact upon their economic development. Moreover, they suggest a level of scientific and technological authority that might be unwarranted. Ratcliffe (2002) identified reasons why the apparent certainty of locating an incident using geographical information systems technology might be misleading. Most of these relate to the real world context in which information about criminal incidents is (mis)understood by victims and witnesses and subsequently recorded inaccurately by the police. Increasingly significant forms of crime – technologically driven forms of fraud, for example – transcend traditional geographies of territory and community. Against these developments it seems likely that crime mapping might not capture these emerging patterns.

technology and the routines of police work

While crime mapping technology provides a platform for the strategic direction of police services, albeit one that might be imperfect, other technological innovations have shaped the routines of police work, just as they have transformed working life more generally. As was noted above, technological developments played a significant role in the development of Unit Beat Policing in Britain during the 1960s, when the introduction of computer-aided dispatch (CAD) systems offered the promise a more efficient response to demands from the public. CAD systems use a terminal in patrol cars via which a
central control room directs officers to respond to incidents reported by the public. Details of the incident, such as the address, names of those involved, previous history of the address and the caller, and the degree of priority attached to the report, are transmitted to a screen in the patrol car. Manning (1992, cited in Chan, 2001) commented that the promises of increased efficiency offered by CAD, and other technological innovations, have often not been met and that they have had less impact on police practices than were forecast. However, Ericson and Haggerty (1997) found that officers regarded CAD as a positive innovation that allowed them to perform vehicle and other checks relatively quickly and securely (unlike older police radios, CAD systems are not susceptible to being monitored by illicit scanners).

An addition to technological innovations that assign officers to cases has been the development of computerised crime reporting systems into which details of incidents are entered. Although police officers have always been concerned to gather and process information about criminal and other incidents, the development of databases that store, sort and communicate such policing outputs has transformed traditional practices. In an era when the deployment of police officers and PCSOs on ‘high visibility’ patrol has become an imperative, the impact of computerised reporting systems on officer’s time is an important concern. A Home Office study (PA Consulting Group, 2001) found that officers spent 43.1 per cent of their time engaged in ‘backroom’ activity, in police stations and custody suites out of public sight. Not all of this time was spent completing incident reports, but the study identified problems with IT systems that were out of
date, non-intuitive and so difficult to use, did not have sufficient terminals and access points, and were prone to system failures. Chan’s (2001) study of the impact of IT on an Australian police service found similar concerns about the time that officers had to devote to computerised recording and reporting systems, and the negative consequences that this had in terms of patrol work. However, she also found that officers valued the communicative and intelligence capacity of systems and the advantages offered in terms of generating knowledge of offenders and broader crime patterns.

Enhancing the role of IT within the routines of police work has also impacted upon the dynamics of power relations within police services. Not only is the status of technical support staff, such as data analysts, enhanced relative to other specialist and general police staff, but so too the nature and reach of supervision is affected and the command and control capacity of central police management is enhanced. The ability of line managers to oversee the work of their officers is greatly enhanced by the easy availability of accessible information on the status of enquiries that an officer is assigned to. Not only does this allow for the ‘performance’ of officers to be inspected, and compared with that of colleagues, it can also impact upon the ways in which officers approach incidents. One consequence of this might be that the officers become relatively deskilled as they perform routine duties according to prescribed procedures and policies, secure in the knowledge that any deviation from these can quickly be identified by supervisory officers. In recent years officers have been required to identify, when inputting incident details, cases that might be hate crimes of some kind, the ‘flagging’ of which then prompts senior officers to ensure that they have been investigated according to established guidelines. Additionally the better identification of such cases provides for more effective communication of problems to other agencies involved in policing partnerships (Hall, 2005: 203–40).

THE IMPACT OF TECHNOLOGY ON POLICING AND POLICE WORK

As the proceeding discussion demonstrates, technological developments have impacted upon the police service in diverse ways. Some of these have enhanced traditional features of police work, on occasion transforming them to such an extent that they significantly affect the capacity and capability of the police service. DNA-fingerprinting, for example, might be regarded as a more sophisticated version of long-established efforts to capture and collate the unique properties of individual victims or offenders. Technology in this context enhances and transforms the cultural attribute of suspicion that has been widely regarded as central to police work. Where once officers structured their suspicion of vehicles in terms of the age, make and state of repair or the ascribed character of those within it, or the speed or driver’s response to the presence of a patrol car, they now have recourse to technological verification of the status of all vehicles.
Ericson and Haggerty (1997) suggested that the apparent scientific and objective certainty of such data both empowers officers, since it elevates their perceptions beyond ‘suspicion’ towards ‘knowledge’, and, conversely, threatens to deskill police work by removing the traditional craft aspect of patrol.

Technological innovations might have reshaped police work for some years but emerging new forms of technology, coupled with other shifts in terms of reducing officer numbers and an emphasis on professional practice, have the potential to act as a progressive platform for reform. Innes (2013) argued that new web and social media technologies mean that the ownership and use of intelligence and information can be devolved away from central police databases and instead can be operationalised more effectively by response officers during routine police activities. He noted that automated systems and algorithms mean that intelligence no longer needs to be reviewed and processed by central experts within police services but can be used via apps by officers directly in real-time work. Innes proposed a form of community intelligence-led policing whereby technology combines with forms of Neighbourhood Policing (as outlined in Chapter 5) and enhanced public consultation so that policing can be delivered more effectively on the basis of community expectations. This model of policing, Innes suggested (2013: xx),

imagines a police constable who is plugged into a variety of community intelligence ‘feeds’, using policing informatics to make sense of these data to steer their decisions about how and when to intervene. A critical point being that the informatics technologies decenter the knowledge-work involved, moving it out from central units to locations far closer to the point of delivery.

the surveillance society?

A central debate in academic discussion of the use of CCTV, ANPR and other technological innovations relates to the supposed panoptical effects of such forms of surveillance and the development of a disciplinary society. Foucault (1977) argued that systems of dispersed social control had spread beyond the penitentiary such that society itself, and the governance thereof, could be considered in panoptical terms (see Box 11.4). Along these lines, one of the key concerns about the power and reach of police surveillance technology has been that it extends the capacity of the state to monitor the previously private realm of the citizen. An early forecast of these developments was offered by Marx, who couched concerns about police surveillance in the USA in the following terms (1988: 206–7):

Powerful new information-gathering technologies are extending ever deeper into the social fabric and to more features of the environment. Like the discovery of the atom or the unconscious, new control techniques surface bits of reality that were previously hidden or didn’t contain informational clues. People are in a sense turned inside out, and what was previously invisible or meaningless is made visible and meaningful. This may involve
space-age detection devices that give meaning to physical emanations based on the analysis of heat, light, pressure, motion, odour, chemicals, or psychological process, as well as the new meaning given to visible individual characteristics and behaviour when they re-judged relative to a predictive profile based on aggregate data.

Box 11.4

Compstat

Essentially Compstat is a police management tool that co-ordinates ‘up-to-date computerized crime data, crime analysis, and advanced crime mapping as the bases for regularized, interactive crime strategy meetings which hold managers accountable for specific crime strategies and solutions in their areas’ (Silverman, 2006: 268). It is often used as part of a strategy whereby senior officers meet regularly to review crime patterns in their districts and are held to account on a daily or weekly basis.

The watchful gaze of CCTV has been regarded as one means of extending the ‘maximum surveillance society’, in which the disciplinary powers of governance are at their zenith (Cohen, 1985). The implications of these debates for policing are complex: in broad terms, if the net of social control is widened and the mesh thinned, then the extension of surveillance systems will mean that the focus of the police service expands onto individuals, groups and activities that would not previously have been considered the business of the police. As was noted above, this argument has been made by sections of the media in relation to road traffic policing criminalising ‘ordinary’ motorists not construed as offenders. In addition, as has already been suggested, the growth of CCTV in British society has been in many and diverse directions and the technology has spread in ways such that many agencies, and individuals, have become part of a policing network. The pluralisation of policing has been discussed in Chapter 10, but technology and surveillance systems, such as those that encourage citizens to remotely monitor the security of their property or to consult websites that map local crime patterns, enlist private citizens into policing networks. Hudson (2003) argued that technological developments transform policing and security into matters of private responsibility that are related to the broader expansion of consumer culture into public services (Loader, 1999).

watching the police

Another implication of the growth of CCTV technology, CAD systems and crime reporting regimes relates to their potential to regulate and survey police officers.
In some circumstances, the power of CCTV to discipline officer behaviour is explicitly utilised, such as the use of cameras to monitor behaviour in custody suites (Newburn, 2002). Increasingly, though, researchers are identifying the capacity of citizens to use mobile phones and social media to monitor police behaviour, creating an ‘ambient surveillance through which graphic violence is now routinely captured and circulated’ (Stalcup and Hahn, 2016: 483). Sandhu and Haggerty (2017) found that officers subjected to perpetual surveillance adopted three broad orientations. Some were ‘camera shy’ on the basis that footage failed to capture a complete account of interactions, that the presence of cameras had a negative impact on routine encounters, and made it more difficult for officers to do their job in a safe manner. Other officers were ‘habituated’ to cameras, seeing their presence as part of the working environment that was highly unlikely to record anything remarkable or controversial. The third perspective identified by Sandhu and Haggerty (2017) was that of ‘strategic advantage’, emphasising the evidentiary benefits that recording offered the police and that they could help prevent false complaints about officers’ behaviour. These findings mirrored the study by Ariel et al. (2017), which argued that body-worn cameras (BWCs) influenced the behaviour of both police officers and citizens such that complaints against police ‘virtually vanished’ when BWCs were deployed. On this basis they argued that ‘the use of BWCs … signals a profound sea change in modern policing’ (Ariel et al., 2017: 303).

micro-managing police performance

Technological surveillance might inhibit officers otherwise liable to behave inappropriately but information systems also enhance the micro-management of police performance, which impacts upon routine police work. As Ericson and Haggerty (1997) suggested the enhanced reach of line managers, technologically enabled to review officer performance, can shape and limit the exercise of discretion. By requiring an officer to complete certain procedures, and being able to determine whether this has been done, supervisory officers can limit discretion in ways not previously possible. While this is ostensibly a retrospective review it has anticipatory powers since officers are aware that their actions might be subject to scrutiny. As with Bentham’s panoptical prison, the disciplinary capacity of surveillance affects the ways in which officers conceive of their role and exercise their powers. This is illustrated by Rowe’s (2007a) finding that officers’ response to incidents of domestic violence adopted the principles of risk avoidance. Partly this was based around their understanding that there was a strong likelihood of repeat victimisation, which meant they ought to proactively intervene in what otherwise they might have regarded as a ‘trivial’ private dispute. Moreover, though, the risk of non-intervention was also understood in terms of consequences for themselves,
since they anticipated that their judgement and interventions would be scrutinised by senior officers. In some cases, this meant that officers decide to intervene and arrest a perpetrator on the grounds that to do otherwise would risk their being sanctioned by senior officers. At times this was done even though the officer felt that affecting an arrest was not the most suitable way of solving the particular problem. The often-noted tendency of officers to take a non-interventionist stance in response to ‘domestics’ was being transformed by regulatory regimes which held officers open to scrutiny. Given that most of the routine calls that officers deal with are routed through the CAD system, much of the work that they do is subject to such inspection. The impact on routine police work is not all-encompassing, however, since officers still have considerable discretion in dealing with cases brought directly to their attention while on patrol and it is more difficult to review officer response to incidents that are not first 'captured' by information systems.

changing police culture

Curtailing police decision making through the use of technology and information systems has clear implications for police subcultures, which has often, even if simplistically, been associated with the inappropriate exercise of discretion. Chapter 5 provides a fuller discussion of police culture. Extending the capacity of senior officers to supervise the behaviour and actions of frontline staff might make it easier, for example, to identify officers who over-police minority communities. The ‘reach’ of technology in this sense, though, is easily over-stated since officers inevitably retain some control over the information that is entered into computer systems in the first instance. Equally, in practice, police officers usually retain control over when BWCs are activated: not everything can be recorded and stored for logistical and legal reasons. Moreover, problems of stereotyping and discrimination cannot be solely ascribed to negative characteristics of canteen culture shared by junior ranking officers. The broader institutional framework of policing, the role and influence of the plural policing beyond the public police, and the social context in which crime and policing are conceptualised must all be addressed. Micro-managing the decisions of officers on patrol will not, in isolation, prevent the inappropriate exercise of police discretion. While not providing a technological fix in terms of regulating or deterring police deviance, the changing environment in which officers’ work will be influenced, but not determined, by increasing use of computer-based information and communication systems. As noted above, the role of intelligence systems changes relations within police services and alters the nature and status of police knowledge (Ericson and Haggerty, 1997). Police culture, though, has never been a fixed monolithic entity that can be moulded by external technological or management regimes. Elements of police work will be transformed by the
developments outlined in this chapter, just as they were in the face of technological innovations such as the police radio and the patrol car, but the direction and extent of these transformations are difficult to predict.

CONCLUSION

Technological innovation has transformed late-modern society in complex ways that continue to unfold. Many have argued that they have contributed to processes of cultural, political and economic globalisation, promoted the knowledge economy, and transformed time and space. As Williams (2006) has noted, new forms of technological communication have the potential to fundamentally restructure the means by which individuals form communities and construct notions of deviance and the means to regulate human behaviour. While online virtual communities offer insight into possible futures that are in equal part horrifying and alluring, it is also apparent that information and communication technology has already had a significant impact on police work and crime. As with other debates about change and innovation in policing, however, there is a tendency to assume that such developments represent a fundamental epochal transformation (Jones and Newburn, 2002). The technological capacity of electronic surveillance and intelligence systems does not determine the manner in which they are used or the impact that they have in broader social terms.

There are two main reasons for resisting technologically-determinist views of the developments outlined in this chapter. First, police leaders and politicians have sought technological solutions to crime problems and as a means to achieve efficiency in police work since modern police services were established in the nineteenth century. The pace of technological change might have increased, with significant implications in terms of the power and reach of intelligence systems, but earlier innovations have tended to lead to evolutions in policing, rather than revolutions. The second reason for a cautious reading of these trends is that the impact of technological innovation has often been shown to be dependent upon the fallible human beings responsible for their operationalisation. As has been shown in the context of CCTV, for example, the employment of poorly-paid and under-motivated staff has often meant that technological capacity has not been reached in practice (Norris and Armstrong, 1999). Moreover, just as technological change presents new opportunities for crime and deviance, innovations also create avenues for ‘counter appropriation’ whereby officers can find means to use, for example, mobile phones to communicate with one another beyond the sight of inspection or surveillance systems (Manning, 1996, cited in Chan, 2003). Policing will continue to be shaped by technological developments that broaden and transform networks of regulation in the global information age; the direction and nature of this impact will be determined by the
context in which it is deployed. For this reason predicting technological configurations of policing in the twenty-first century remains a risky pursuit.

**chapter summary**

- Academic and policy research tend to suggest that science and technology are important components of contemporary policing but that they play only a partial role in most criminal investigations.
- In addition to enhancing the investigation of crime, technology has transformed the nature of police communication and information management. This has not been a wholly recent phenomenon, however, and again it has been limited by 'real-world' considerations relating to funding, training and police subculture.
- In Britain, CCTV has been at the forefront of new technologies that monitor a host of human interactions in residential, education, retail, business and leisure environments. In 2006, the Information Commissioner (Evans and Mostrous, 2006) warned that Britain was ‘sleepwalking into a surveillance society’, and it is estimated that the country is monitored by 20 per cent of the world’s cameras.
- The research evidence on the impact of CCTV on crime rates is not extensive, but tends to suggest that it can reduce rates of crime without significant problems of displacement, but that this is only the case when it is applied in certain environments and in respect of certain types of crime. Although CCTV-generated images have proved very useful in the investigation of some high-profile criminal cases, like other forms of technology, there is little definitive evidence of the impact it has on detection more generally.
- ANPR technology was developed in response to threats of terrorism, and provides the police with the capacity to identify large numbers of vehicles and to retrieve information about those that might be stolen, uninsured or associated with known offenders.
- Arguments that the police criminalise law-abiding motorists have been appeared periodically since the expansion of car ownership in Britain in the 1920s and 1930s.
- Although not used routinely, unmanned aerial vehicles (drones) offer financial savings to police and the capacity to operate in circumstances that otherwise would be inaccessible. As with other aspects of police surveillance, concerns have arisen about the privacy and civil liberties implications of the use of drones, as well as their impact on communities already over-policed.
- Technological change has transformed the ways in which police work is conducted. That crime is not evenly distributed, either in terms of offenders or patterns of victimisation, has led to the development of crime mapping techniques that promise to identify locales, times and circumstances in which criminal acts occur.
• While there is some evidence that crime mapping has enabled the effective targeting of specific crime problems, concerns are also identified about the impact of aggressive police tactics on police–community relations.

• Technology has been used to develop ‘hot spots’ policing, whereby information about criminal incidents is used to provide maps of local crime problems. This can then underpin operational policing strategy. In some cases such maps are available directly to the public via the web.

• Beyond the identification and investigation of crime, technology has impact upon routines of police work, particularly in terms of communication and information management. CAD systems play a central role in shaping the work that officers do, and limit the exercise of officer discretion.

• Social media and web technology offer the potential to integrate intelligence-led strategies with community policing. Officers can access and analyse information and data within routine police work through the use of apps, for example, that can enhance public consultation and the delivery of police services.

• These developments have a range of implications for society. Many have argued that the expansion of surveillance technology pushes society into the realms of the panopticon, whereby individual behaviour is disciplined by anticipated processes of regulation. This has various implications for the police, not least that an increasing range of agencies and individuals come to be engaged in processes of social control. It also extends surveillance of police behaviour itself, and conditions the nature in which officers exercise their discretion.

• There is a strong imperative to avoid technological determinism in considering the influence that these developments will have on crime, policing and social relations more widely. Technology is deployed into particular institutional and cultural contexts, which means that its capacity and possibilities can be resisted, deflected or transformed in practice.

self-check questions (with answers at the back of the book)

1. What does the acronym HOLMES stand for?

2. What percentage of the world’s CCTV cameras was it estimated are deployed in Britain?

3. In relation to what three types of crime did police officers suggest CCTV was particularly effective?

4. Against what sources of information does Thames Valley police check information gathered via ANPR?

5. What percentage of the British population support, in general terms, the use of cameras to police speeding drivers?

6. What is Compstat?
7. In Britain in the 1960s computer-aided dispatch systems were introduced in the development of what model of policing?

8. Who developed a model prison that enshrined the concept of the panopticon?

9. To what broader social and political processes do Hudson (2003) and Loader (1999) relate the development of technology in policing?

10. Which three perspectives on video recording of police behaviour did Sandhu and Haggerty (2017) identify?

**study questions**

1. What should be the balance between civil liberty concerns about the ‘right to privacy’ and the security dividends associated with surveillance technology?

2. Does crime mapping provide information useful to the general public?

3. What might be the implications of technological limitations on police officer discretion?

**annotated further reading**

Erison and Haggerty’s (1997) *Policing the Risk Society* is probably the key recent study of policing and technology, not least because it argues that the development of new information and intelligence systems has importance far beyond discussion of efficiency and effectiveness. The book’s central theme is that technological innovation transforms routine police work into a form of knowledge work, whereby officers are increasingly responsible for transmitting information about risk across networks of agencies engaged in policing.

Gill and Spriggs’ (2006) *Assessing the Impact of CCTV* is a Home Office research study based upon an extensive study of the effectiveness of surveillance cameras in 14 sites, including town centres, residential areas, hospitals and car parks. The study used control group areas to assess the impact that CCTV had on local crime rates and examined public attitudes to the systems. The findings show a very mixed picture. CCTV proved reasonably effective in certain areas (particularly those with controlled and fixed entry and exit points, such as car parks) and in relation to certain types of crime. In other areas, such as residential locations, and in relation to crimes such as violent assault, the study suggested that CCTV had little impact.

Innes’s (2013) book chapter provided a fascinating case for integrating information technology more centrally within community policing. He argued that technological innovations, coupled with parallel developments in financing, professionalism and globalisation, mean that frontline officers can make decisions based upon intelligence and professional analysis.
This will contribute to more effective policing that is more closely aligned to community expectations.

**annotated listings of links to relevant websites**

The College of Policing (www.college.police.uk) was established in 2012 and provides professional development, training and expertise intended to spread ‘best practice’, encourage innovation and to raise the standard and quality of police services.

The National Institute of Justice is a subdivision of the US Department of Justice and its website (www.nij.gov/topics/technology/maps/pages/welcome.aspx) provides a wide range of material on crime mapping and hot spots policing. The principles and practices of crime mapping are outlined in detail and supporting research is analysed. The site includes software programmes used by crime analysts.

Privacy International is a pressure group campaigning on surveillance issues such as data protection, communication surveillance, border technology, ID cards and others. The group’s website (www.privacyinternational.org) contains a wide range of resources, including country profiles.

**annotated links to journal articles**

Chan identified the impact on technology on police work, both in organisational terms and in relation to the culture of policing:


Barnard-Wills and Wells provide a useful overview of contemporary debates about surveillance in policing in their introduction to a special edition of a journal containing a range of useful articles:


A fascinating insight into ways in which officers respond to being filmed on duty by members of the public:


The practical and political implications of crime mapping are explored in: