Design Led Criminology: An Investigation into Police Use of Body-Worn Video Cameras in England & Wales

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Declaration

I, Thomas Marriott, declare that this thesis
and the work presented in it is my own.
Where I have consulted or presented the
work of others this is always clearly stated.

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Abstract

Research into police body-worn video cameras (BWCs) is a burgeoning field. However, on the whole, research tends to be quantitative and positivist. This thesis considers how else we might know about this piece of technology suggesting design as way of doing so. The project exists at the juncture of design and social research, building theoretical and methodological connections between design, cultural and critical criminologies, and science and technology studies. Drawing on Actor-Network Theory (ANT) the thesis argues for paying empirical attention to the objects of crime and its control. The thesis draws both empirical, methodological, and theoretical conclusions about BWCs. It suggests that the BWC can be thought of as ontologically multiple and that any political salience it might have is as a result of its performance or enactment. Based on this the thesis argues that, rather than being conceived only a disciplinary device, BWCs instead have many possibilities. The practical aspects of this research spanned various research sites and involved three interlinked approaches: making, observing, and speculating. Making, I argue, offers a way to make sense of material, stack various ontologies, and produce outcomes. These outcomes, used during, and in conjunction with, observational research with research participants can engender specific conversations, and invite speculation. Empirically, the thesis outlines three distinct but related enactments of BWCs by police: BWCs are enacted to provide professional and emotional security to officers; BWCs are enacted with TASER devices, making a particular model of policing possible; and BWCs reinforce and support a particular kind of police culture. Methodologically, the thesis suggests various ways in which design and social research can work productively to examine technology in such contexts. Theoretically it argues that the notion of ontological multiplicity might be productive for considering how police technologies are understood.

Anecdote: A Photograph of an Arrest

Fig. – 1 Photograph of arrest, Brixton – 2016

It was the summer of 2016, and we were sitting chatting in our rented studio in Brixton. It wasn't far from the police station and sirens were common. To be honest I don't really know what made me get up from my chair, climb onto the window ledge and peer out onto the street below. Something did though. I leant out of the window to watch the drama unfold beneath me. But I didn't just watch, at some point I took this photograph on my phone (see Fig. – 1). I've returned to it again and again, both as a source of inspiration and of fascination.

It's a photo of an arrest. Much like sirens, an arrest is not a particularly uncommon occurrence in this busy part of South London. The photo (and the event it depicts) says a lot about contemporary policing. In taking the photo I wasn't just watching the arrest. Like the growing crowd forming on the pavement, I had decided that recording this incident was important. But why? Why were we all clutching our phones, and taking pictures? Saving the moment for posterity, perhaps. Though it seems unlikely you'd go back and watch an arrest on Brixton High Street. Uploading it to social media, probably in some cases – I think I did actually. Trying to protect the person being arrested from the potential of heavy-handed policing? Maybe, given the history of the policing of people of colour in Brixton. Regardless of our motives the sheer number of recordings, perspectives, and the volume of data generated is pretty staggering. Over half the people on the pavement are using the cameras on their smartphones. But even then, that's only half the story. It's not just the public who have cameras, the police have them too. Mounted on each of the officer's chests is a body-worn video camera.[1] The contemporary police-public encounter is truly a technological event.

[1] Given the police force and the year, the camera was, most likely, an Axon Body 2.

Chapter One:
Introduction

1.1 – Introduction

This design-led, interdisciplinary research project investigates the use of body-worn video cameras (BWCs) by police forces in England & Wales and considers some of the implications of the technology. To do this it draws on both literatures and methods from design, criminology, and science and technology studies (STS). This introduction discusses the use of BWCs by police and clarifies what a BWC is, at least in a practical sense. It will then briefly review some of the existing research into police use of BWCs, discussing what this research has been attempting to find out, and some of its theoretical underpinnings. It will be argued that this research, although important, offers only a partial and limited understanding of the technology, and that it fails to account for the multiple other ways in which BWCs might work. In relation to this I will then discuss the rationale for the approach taken here. This involves a brief introduction and discussion of how design, criminology, and STS might shed new light on the other realities of BWCs. I will argue that such an approach can produce both methodological and empirical insights and can contribute to academic debates on police visibility and policing's use of technology. Finally, the introduction will outline the aims, and audience, of the research and how the thesis is structured.

1.2 – Police Use of BWCs

Use of BWCs by police has risen dramatically in recent years.[2] Proponents of the technology claim a host of positive effects, for instance, improvements in public trust, reductions in use-of-force and the number of public complaints, improved quality of evidence, and the potential for improved training (White and Malm, 2020). BWCs are also discussed as contributing to improved efficiency, and greater levels of transparency and accountability (Dominiczak, 2013). BWCs have been described as 'revolutionary' by the then National Chair of the Police Federation, John Apter (Ford, 2015), because of their ability to act as 'objective' and 'independent' witnesses to interactions between the police and the public. Resultingly, BWCs have been framed as a solution to growing concerns about police brutality and overzealous use-of-force (especially towards minority groups). The presence of a BWC can, it is suggested, prevent abuse and malpractice from happening, or in instances where conduct *is* questioned can provide non-partisan evidence showing how events unfolded (Dominiczak, 2013). Effects such as increased transparency and accountability are widely regarded as logical outcomes of the introduction of BWCs; how could adding a camera not increase transparency and make the police more accountable? However, as will be discussed more below and throughout this thesis, evidence that backs this up is somewhat mixed.

In England and Wales, trials into BWCs began as early as 2006 and 2007, conducted by Devon and Cornwall Police (Bear and Rieken, 2014). However, as noted by Michael White and Aili Malm, 2014 saw a rise of the use of BWCs, particularly in North America and England and Wales. In July 2014, Eric Garner was killed by New York Police Department officers, and in August, Michael Brown was shot and killed by Ferguson police officer, Darren Wilson. Civil unrest followed prompting the then president, Barack Obama, to call for BWCs to be issued to all officers (Foster, 2014). These calls were echoed by civil rights organisations who advocated for the cameras to be mandatory (Lewis, 2014). In the same year in the United Kingdom, a large scale trial was

[2] It should be noted that BWCs are routinely being used in a range of contexts aside from just policing, for example, by security guards, traffic wardens, amateur football referees and even by teachers (Walker, 2017).

conducted by the London Metropolitan Police, a force keen to restore the trust of the public following the deaths of Jean Charles de Menezes in 2005, Ian Tomlinson in 2009, and Mark Duggan in 2011 (Travis, 2014; Siddique, 2015). Even by 2016, however, and the death in the United States of another Black man, Keith Lamont Scott, again at the hands of police, the excitement and optimism about BWCs from civil liberties groups was already beginning to wane. Transparency, it appeared, was not guaranteed, and policies that governed BWC use seemed to favour the police (Bear and Rieken, 2014; Lapowsky, 2016).

From the perspective of police managers, BWCs are certainly an attractive proposition. Effects such as improved efficiency, reductions in use-of-force incidents and the number of complaints would be appealing to most police forces. For forces in England and Wales, coping with the implications of stringent funding cuts as a result of Conservative austerity policies, BWCs were no doubt particularly attractive; perhaps explaining why these forces have been such rapid adopters of the technology (Hymas, 2018).[3] This rapid intensification of police use of BWCs hasn't happened in a vacuum. Alongside BWCs, police, both in England and Wales and around the world, have intensified their use of a diverse range of technologies – such as portable notebooks and tablets, but also software and cloud-based solutions – in an attempt to digitise policing.[4] Some scholars use the term 'Platform Policing' to describe a range of efforts, technologies, and techniques that reorganise how policing is conducted, often with the stated aim of improving how data are shared and used to improve efficiency (Gates, 2019; Wilson, 2019a). BWCs, in many respects, are a feature of this shift taking place in policing. BWC use has also coincided with a growing tendency, perhaps necessity, from citizens, to record and share an increasing amount of our lives using a range of digital and networked recording devices, something evidenced in the photograph that preceded this chapter (see Fig. – 1). Sandberg and Ugelvic describe a 'snapshot culture' (2016) and emphasise the impulsive reflex to take pictures and videos of anything that might be deemed in the slightest way newsworthy. Today, the production and consumption of digital media is a defining feature of contemporary societies, allowing us to both exist within, and make sense of, them (Koskela, 2002). It is important that the growth in BWC use is not only viewed against this backdrop but that we consider BWCs as component features of it. Society, crime, and its control are now deeply intertwined and affected by the circulation of images by technological means.

One of the upshots of the snapshot culture that Sandberg and Ugelvic talk of is an intensification of police visibility. As noted above, in recent years, high-profile and recorded instances of police brutality mean that the issue has grown in the public consciousness. This is evidenced by the growth of the Black-Lives Matter movement following the murder of George Floyd, a Black man killed by a White police officer, Derek Chauvin, in 2020.[5] Floyd's death was recorded by a member of the public on their smartphone. The footage showed Chauvin kneeling (for almost nine minutes) on Floyd's neck. Viewed by millions of people, the images had implications for policing across the world, and rightly forced tough questions to be asked about policing in

[3] Complaints require resources to examine them and can mean that officers are removed from operational duty whist investigations are conducted.

[4] The 'Policing Vision 2025' document (Association of Police and Crime Commissioners and National Police Chiefs' Council, 2016) outlines various ways in which police can make use of digital technologies to adapt to the changing demands of a contemporary policing environment.

[5] Depressingly, various drafts of this chapter have had to be updated as more people have tragically been killed by serving police officers.

England and Wales. Chauvin was found guilty at trial and was sentenced to twenty-two and a half years' imprisonment (Yang, 2021). Now, perhaps more than ever, police conduct can be held to account by citizens recording footage, an act sometimes referred to as sousveillance (Mann, 2004). As the rapper Ice T tweeted in the aftermath of Floyd's death (see Fig. – 2), 'Trust me… If we didn't have cameras… This would ALL be denied' (Marrow, 2020).

Fig. – 2 Screengrab of ICE T Tweet June 2nd, 2020

All of the officers' present during Floyd's murder were wearing BWCs. However, it seems that only one officer, (who arrived later to the scene and who, according to the Minneapolis police, was not 'directly involved' in the incident) had theirs turned on. BWCs did not prevent George Floyd's murder, and it was citizen footage that resulted in Chauvin's conviction. Despite this, internationally, there has been a renewed discussion about the role of BWCs in policing and for their potential for preventing police brutality, holding officers to account, and more broadly improving the quality of policing (Baik, 2020; Goodfield, 2020; Stanley, 2020). Maybe we could redesign how BWCs work, come up with better protocols for their use; ways that would *guarantee* they would be more effective when we need them the most. Maybe the cameras could be triggered automatically, or the footage beamed directly to the cloud? From the very beginning, back when BWCs were first introduced, we were told that they were not technological panaceas or quick fixes (Brunt, 2014), it is hard not to be struck, however, by the feeling (perhaps even hope) from some, that they might be a solution, even if only in part.

1.3 – What is a BWC?

Before going any further, it is useful to outline, at least in a practical sense, what a BWC actually is and how they're supposed to work. On the face of it this seems like a relatively straightforward challenge; BWCs are relatively simple pieces of technology and despite there being range of different models on the market there are certainly generalisable characteristics. We can think about a BWCs size and shape, the materials they are made out of, and perhaps even outline some of their basic features and functions.

A BWC is small, approximately 8cm x 6cm x 2cm, allowing it to be easily mounted onto the wearer's body (often via a clip to a wearer's uniform or body armour). It is made from a robust, hard-wearing, knurled or rubberised plastic, which is almost exclusively black. It has a small number of control buttons, a wide-angle lens, microphone, and a USB port for charging and transferring data. Inside the BWC there is a printed circuit board, a long-life rechargeable battery, and encrypted internal data storage. Sometimes BWCs have a screen on the front that shows what the camera is recording, and in other cases there is a coloured light which indicates that recording is taking place. At the time of writing, across the forty-two police forces in England and Wales there are a number of different BWC suppliers, though two companies, Axon Enterprise (see Fig. – 3) and Reveal Media (see Fig. – 4) dominate the market. Despite some slight variations between models and manufacturers BWCs, on the whole, look remarkably similar: small, black boxes, made of plastic, with a lens and some buttons.

BWCs record digital video and photographs to an encrypted hard drive. This media cannot be deleted from the device and, in the case of the police, can only be deleted once uploaded to centralised evidence management software and marked as non-evidential. Although first-person video recording remains the core function of a BWC, technological advancements and innovation within a competitive market mean that the exact specification and functions of cameras is constantly evolving. Already we are on the third and fourth generations of BWCs, with research and development teams working constantly on new models with additional features. Higher definition recording, GPS location tracking, and live streaming are features increasingly available on newer models and there is even the suggestion of artificial intelligence (AI) and facial recognition software being introduced to BWCs in the near future (Gershgorn, 2020).

Fig. – 3 Axon Body 2 Camera

(Used with permission of Axon Enterprise, Inc. who hold the copyright to this image)

Fig. – 4 Reveal Media 'D Series' body camera

(Used with permission of Reveal Media who hold the copyright to this image)[6]

[6] This image is used solely to illustrate one model of body worn camera and any further discussion of BWCs in the thesis is referring to them in a general sense.

So, we know what a BWC is: a black box made of knurled plastic. And we know in very simple terms what it does: take video recordings from the point of view of the wearer. At this point, it is worth mentioning where the cameras originated from, their underlying logic, and the 'design problem' they were originally intended to solve. This not only begins to shed light on the rationale for their deployment, but also perhaps explains the reason that they look the way they do. This involves a brief discussion of Axon Enterprise, the market leader in terms of development and supply of BWCs, both in England and Wales and around the world (Brustein, 2018). Formerly TASER International, Axon rebranded in 2017 to reflect a change of focus in the company, from the production of 'non-lethal' weapons, towards police media technology.[7] BWCs specifically can be traced to 'TASER CAM' (see Fig. – 5), an innovation within the TASER product line, introduced in 2006. TASER CAM consisted of a power-pack for the TASER device (located in the butt of the gun) which incorporated a small digital-camera that would be activated when TASER was drawn. TASER CAM was designed to provide visual evidence (from the police perspective) that could be used to combat the growing number of complaints from those who perceived that the deployment of TASER amounted to excessive force (Amnesty International, 2004; Gates, 2016). TASER CAM, in no uncertain terms, was a design solution to complaints about police use-of-force. The innovation proved to be highly successful and the potential for a more general police camera unit was recognised. Initially, this came in the form of 'Axon Flex', a head mounted unit, and later, 'Axon Body', the first body mounted device. BWCs origins are directly linked to attempts to justify police use-of-force.

Fig. – 5 TASER X26P with 'TASER CAM' battery attachment

(Used with permission of Axon Enterprise, Inc. who hold the copyright to this image)

[7] There is some debate as to where the 'TASER' name comes from. Whether it is homage to the *Thomas A. Swift's Electric Rifle*, the childhood favorite of NASA scientist, Jack Cover, who Smith bought TASER from, or if it is named after the 'Phaser' gun in Smith's favorite television show *Star Trek*. Either way, TASER – both company and device – are deeply connected to science fiction.

Despite the migration of the camera from TASER CAM to the police body camera, BWCs and TASER still have a close relationship. Aesthetically, BWCs (both those produced by Axon but also by other manufacturers) still share a knurled plastic and militaristic design vernacular, closer perhaps to a semi-automatic pistol than a digital camera. More practically, despite the shift in the company's focus, Axon continue to supply both TASER and BWCs to police forces and it is argued by some that existing business relationships as a result of the supply of TASER devices has contributed to Axon's ability to rapidly dominate the BWC market (Gates, 2016). In England and Wales, BWCs are, in many respects, a prerequisite for TASER use, something that will be discussed in more detail later in this thesis. Despite Axon's dominance, it is important to reiterate that they are not the sole supplier of BWCs to the various police forces in England and Wales. Having said that, as TASER devices look set to play an increasingly significant role in policing in England and Wales (*The Guardian*, 2019b), it will be interesting to see if the historical relationships between BWCs and TASER, not to mention existing business relationships, will mean a greater number of police forces in England and Wales move towards Axon products in the near future.

1.4 – Measuring the Effects of BWCs

The spread in BWC use has been rapid with a huge amount invested in the technology. They have become a common sight on police officers around the world, as Malm and White note,

> [t]he BWC phenomenon raises interesting questions about the processes by which police departments adopt new technology, the manner in which initial concerns or questions over that technology are overcome, the progression that occurs over time to "normalize" use of that technology, and how success of the technology is measured (2020, p. 82).

Researchers have done their best to keep pace with the growth in BWC use and there is a growing body of research which examines the effects of technology. With regards to the effectiveness of BWCs in achieving the various positive effects discussed previously this, research paints an unclear picture.[8] Much of the research has emanated from the United States (Ariel *et al.*, 2015; Ariel *et al.*, 2016, 2017, 2018; Henstock and Ariel, 2015; Yokum *et al.*, 2019), though in the United Kingdom there have also been a number of studies conducted (Ellison and Adams, 2017; Grossmith *et al.*, 2015; Jennings *et al.*, 2014; Jennings *et al.*, 2017; Park, 2011; Spencer and Cheshire, 2018). In addition there have also been a number of literature reviews conducted (Lum and Koper, 2015; Maskaly *et al.*, 2017 White, 2014). Generally speaking, experimental models, and specifically, randomised controlled trials (RCTs) have been used to provide evidence regarding the efficacy of BWCs. Whilst a range of factors have been examined, for instance citizen (White *et al.*, 2017) and officer (Jennings *et al.*, 2014) perceptions of BWC use, as White and Malm observe, 'research into [u]se of force and complaints against police have eclipsed other areas of BWC research' (2020, p. 17). One of the reasons for this, they suggest, is because these two metrics are easy to measure. But considering the claims regarding the civilizing effects of BWCs, and the fact that BWCs were introduced as a direct response to a series of deaths at the hands of the police, it is unsurprising

[8] For a comprehensive discussion of the evidence in relation to these aims, see Chapter Two of White and Malm's book *Cops, Cameras, and Crisis: The Potential and the Perils of Police Body-Worn Cameras* (2020).

that these two metrics have received such attention. Nonetheless, considering the widespread use of BWCs, and the fact that their use now covers such a breadth of day-to-day policing, effects *aside* from those claimed by advocates (and marketeers) are surely worth attention too.

Because RCTs are so dominant in BWC research, the methodological and theoretical frameworks which underpin these studies are worth attention, as are some of the noteworthy findings, and the role that these studies have played for both marketing BWCs and shaping public discourse around BWC use.[9] On the whole, studies attempt to draw a causal link between the presence of BWCs and a reduction in the stated instances of the use-of-force incidents and complaints. These metrics are discussed as suitable proxies for both police accountability and police-public relations (Ariel *et al.*, 2015), and it is worth noting that these are already recorded by police forces. The central hypothesis is as follows: the presence of BWCs in police-public encounters will have a deterrent effect resulting in a reduction in both the number of incidents of use-of-force and in the number of complaints. This is based on a widely held assumption that when individuals are aware of being observed and/or monitored, a process of self-awareness and self-scrutiny begins (Ariel *et al.*, 2018). This self-awareness is argued, in turn, to result in a modification of behaviour, and a conformity to what might be perceived as more socially acceptable norms (Braga and Weisburd, 2012). The overt mounting of BWCs on police bodies, and the fact that recording is (or at least should be) announced by officers, means that behavioural modification is, in theory, guaranteed. RCTs compare the results of a 'treatment group' (BWCs present) against a 'control group' (BWCs not present), comparing the two metrics. If the hypothesis of the studies is correct, treatment groups will see a reduction in use-of-force and complaints from the public when compared to the control group.

The hypothesis of these studies are based on seems logical: if you're wearing a camera, there is evidence, and you are less likely to abuse your position power. Likewise, if you see that an officer is wearing a camera, you are probably less likely to be violent and less likely to end up getting charged with assaulting an officer. Nevertheless, there are issues with directly equating a reduction in complaints to improved police conduct, or more broadly to improved police-public relationships. One of the key issues is that the likelihood of a complaint being submitted is not directly comparable across different policing areas (Ariel *et al.*, 2017). From one location to another, the threshold of what constitutes a grievance worthy of complaint can vary significantly. In an area where public faith in the police is particularly low and where there is little belief that the complaint will have an effect, it might be unlikely that a complaint submitted is filed in the first place, for instance. In fact, somewhat counterintuitively, a certain number of complaints can even be regarded as a sign of success: evidence of the public's belief in the mechanisms of police accountability. Indeed, any attempt to eradicate complaints completely is likely a mistake, some suggesting that seeking to reduce complaints 'signals an avoidance of accountability' (Brucato, 2015, p. 466). Complaints are, nonetheless, a drain on resources and it would be hard to find many police agencies that didn't try to keep them to a minimum (Ariel *et al.*, 2017).[10] It should be kept in mind that a reduction in complaints – although being attractive to police management and whilst, perhaps, being suggestive of improving

[9] Arguably, those contributing to a common sense understanding of how technology functions and the normalisation of the technology that White and Malm talk of.

[10] As will be discussed later in this thesis, as well as being a drain on organisational resources, complaints can also be the source of stress for officers, putting their careers in jeopardy, and are minimised for this reason.

police-public relationships – does not equate to better quality or more democratic policing.

Most studies, but not all, find a correlation between the introduction of BWCs, and a reduction in both complaints, and use-of-force incidents. As Malm and White note, '[t]he body of research examining the impact of BWCs on use-of-force and complaints against officers is persuasive, especially for complaints, but the findings are by no means unanimous' (2020, p. 36). Some studies, for example, one conducted in Rialto, Arizona, suggest that BWCs have a big impact, reporting a drop in instances involving use-of-force by officers of fifty-nine percent, and complaints from the public by eighty-seven percent (Ariel *et al.*,2015). Whereas others, such as one conducted in Washington DC, report null findings and find no evidence to support that BWCs are effective in reducing instances of use-of-force or complaints (Yokum *et al.*, 2019). As Adams and Mastracci note, 'evidence of BWC effectiveness is mixed' (2017, p. 315). Once we dig deeper into the findings of the studies we find that most pose more questions than they answer. With regards to who BWCs affect, it is striking that studies seem to show that BWCs seem to predominantly affect the behaviour of police, or at least that the 'causal chain' begins with them (Ariel *et al.*, 2018). This is, however, qualified with the advice that, due to 'the speed with which such interactions take place, and the very fact they are reciprocal in nature' (Ariel *et al.*, 2018, p. 5), it is hard to truly answer the question of who is more affected by BWC. In relation to BWCs influencing officers' behaviour, another study suggests that the modifying effects of BWCs can be *too* strong, causing 'over self-awareness' from officers (Ariel *et al.*, 2018). This, over self-awareness causes officers to think twice about how they might be perceived on camera, leading to overly cautious behaviour and a reluctance to use tactics such as aggressive voice commands, even when justified or necessary. This, it is suggested, means that officers are perceived as less authoritative, weak, or easy targets, and, it is argued, increases the risk of attacks and or violence towards them (Ariel *et al.*, 2018). So, in this instance, it is argued that BWCs do not *reduce* instances of violence or use-of-force, but instead potentially cause an increase in use-of -force, as situations escalate quickly and require physical intervention, when, previously, strong or aggressive language might have sufficed. Another interesting effect of BWCs is what has been termed 'contagious accountability' (Ariel *et al.*, 2017). Here, the effects of BWCs are argued to be *shared* amongst both treatment and control groups.[11] BWCs are seemingly able to affect the entire team in which they are used, and not just individual officers. The specific location or policing area also, seemingly, plays an important role in BWC effectiveness. As noted above, for instance, the Washington DC study (Yokum *et al.*, 2019), reports null findings and suggests that the location of the study was a key factor. A number of issues come into play. Firstly, the authors argue that as a result of policing the US capital, officers may have had prior experiences and/or training for managing high-stakes environments, making them better suited and more adept at interacting with members of the public. Secondly, several significant policing reforms, which specifically addressed officer misconduct, had been undertaken by the force in recent decades. And thirdly, the high presence of non-police cameras (such as CCTV and citizen smartphones) in the capital was suggested to potentially 'mask' the effects of BWCs. On this final point, the authors suggest that the concentration of cameras in Washington DC meant that officers' actions were already under scrutiny and that the addition of BWCs had only a negligible effect on police behaviour. Put simply, and recalling the previous discussion regarding citizen

[11] In their discussion, Yokum, Ravishankar and Coppock (2019) highlight a number of what they perceive to be methodological flaws, which might account for this contagious accountability, namely that BWCs were assigned on a shift, rather than officer, basis. Thus, theoretically, BWCs shift behaviour rather than act as a deterrent.

use of smartphones, the officers in Washington DC were policing within the conditions of the 'snapshot culture' that Sandberg and Uglevik discuss (2016). BWCs are often not the only lens recording police behaviour. I will return to this topic of police visibility, and the multiplicity and politics of the various perspectives later in this thesis.

Despite the mixed findings of studies, lots of the public discourse concerning BWC use, especially within the news media, tends to discuss BWCs as having a positive impact on policing and result in a reduction in complaints and use-or-force incidents. In relation to this, the study from Rialto, Arizona, noted above, despite being widely criticised (Brucato, 2015; Yokum *et al.*, 2019; White and Malm, 2020), remains a key, if not the, point of reference, for those making a case for BWC deployment.[12] Figures, such as a fifty-nine percent reduction in use-of-force incidents and an eighty-seven percent fall in complaints, undoubtedly attracted media attention, especially when produced by a research team from the University of Cambridge, and supported by a significant PR campaign (Brucato, 2015). With growing concerns around police brutality and at a time when research into BWCs was especially scant, it is unsurprising that this particular study gained a lot of media attention (Carroll, 2013; Stross, 2013). The significance of the Rialto study, which features frequently in Axon's marketing, in generating interest in the potential for BWCs, and subsequently supporting the case for their deployment, should not be understated.

The studies and findings discussed in this section raise important questions about the ways BWCs are used in practice and also about the ability of the positivist research to fully grasp the implications, realities, and meanings of police use of BWCs. As Jock Young notes in the introduction to *Cultural Criminology Unleashed*, '[t]he positivist dream of a scientific sociology of crime, which attempts to objectively relate cause and effect, becomes all the more impossible in late modernity' (Young, 2004, p. 23). What is needed, he argues, is narrative, and a 'Cultural Criminology' that can '[capture] the phenomenology of crime' (Young, 2004, p. 13). Aside from not being able to capture the meanings of crime and its control, Henne, Shore, and Herb, argue that RCT's and the evidence base they contribute to, are 'complicit in the expansion of police power [...] which disproportionally targets Black and Brown communities' (2021, p. 15). RCTs, minimise the complexity of policing encounters and, as a result, they 'fail to capture how police violence is entangled with interlocking systems of domination' (2021, p. 13). We need to know more about BWCs: if BWCs affect police cultures, how? What are the factors affecting how BWCs are used? What other ways do BWCs work, indeed, are there other ways of knowing about them?

1.5 – Other Ways of Knowing BWCs

Thus far, I have established what BWCs are, what they do, and have discussed some of the existing research that attempts to make sense of them. Until now I have discussed BWCs either in practical terms or in relation to their supposed function as a deterrent. I am now going to complicate matters by arguing that this is just one way of thinking about BWCs. In order to make this argument, I will digress somewhat and talk about, of all things, a water pump! Not just any water pump, specifically, the *Zimbabwe Bush Pump 'B' Type*.

[12] A key concern is with the study's design. For example, the allocation of BWCs to officers by shift, rather than officer - meaning that participants in the study were exposed to both 'control' and 'non-control' conditions – is a methodological decision that is discussed by the authors (Ariel, Farrar and Sutherland, 2015). Perhaps more significant, however, is that the Rialto department had been under scrutiny for some time for issues with relation, specifically, to use-of-force. Indeed, Farrar, one of the authors of the study and a senior officer within the force, was hired to 'clean up' the department.

Marianne de Laet and Annmarie Mol, in their paper, *The Zimbabwe Bush Pump: Mechanics of a Fluid Technology*, mobilise the metaphor of fluidity to describe the Zimbabwe Bush Pump (2000). This pump is 'solid and mechanical and yet, or so [they argue], its *boundaries* are vague and moving, rather than being clear or fixed' (2000, p. 225). The paper begins, much like I have done, with a description of the hardware, which they say is 'cheerfully blue' (2000, p. 228), and by outlining some of its components, for example, the pump head and the lever. They even describe some of the components that are hidden from view, such as the cylinders: 50mm or 75mm thick and made of brass, and the valves, made of leather and sometimes neoprene. An image of the pump is also provided. It all seems clear and straightforward, it is a solidly made and well-designed pump. But then they throw a spanner in the works by asking, 'have we described and defined our object now?' (2000, p. 231). Their answer is a resounding no. The problem is, 'when it's unloaded from the truck the Bush Pump yields no water. None whatsoever. It is not a pump' (2000, p. 231). Of course! A pump needs to be installed. Once this is done the pump is a source of clean fresh clean water. But it is also a source of something else, health. The pump provides water, and it provides health. The Bush Pump *works* in multiple ways, in terms of health, its aesthetic and technical specifications do not define it. De Laet and Mol explain,

> [a]s a health-promoting technology, the Bush Pump is not defined by its colour, by its hydraulic principles or by the materials of which it is made, but by a set of health indicators The principal health indicator for assessing devices which extract groundwater is the E.coli count. (2000, p. 231)

As with a BWC, we can measure the Bush Pump technology. E. coli counts allow us to assess how clean the water is; there are hygiene standards. An international body states that E. coli levels should be less than 2.5 per 100 ml of water. This means that we can compare water between one pump and another, or, in principle, the water from a pump in a Zimbabwean village and the water from our own tap. But although measurements can be taken, they only tell us about a moment in time; a heavy downpour may contaminate a well the following day. That isn't to say measurements should not be done. No, knowing about the cleanliness of water in a well is important, but as the authors point out 'such measurements do not achieve significance by being compared with allegedly universal standards' (2000, pp. 242–243). For a pump may provide water with an E. coli count well above 2.5 per 100 ml, but if the alternative is an even dirtier source some miles away, then the Bush Pump *still* provides health, at least in relative terms. Moreover, an E. coli count that might make a visitor to the village quite sick, is probably not as serious in a relatively contained and remote village where the population have become used to the bacteria. Whilst E. coli counts can, at times, *indicate* health, they aren't health.

So, the Zimbabwe Bush Pump provides water, and it can provide health. But if a pump's well becomes contaminated (perhaps because it was installed incorrectly or in the wrong location) the pump may provide water, but *not* health. The pump, therefore, requires instructions in order to be built correctly, it requires technical knowledge. The instructions state the height of the borehole elevation, and its distance from latrines. They outline how the concrete slab is to be built and give precise measurements of the parts which must be made. The pump must be installed correctly, but in order for this to happen it needs a hole. And so, the pump must 'collaborate' with another device, something called a 'Vonder Rig', a machine for the boring of holes. Bright yellow, the Vonder Rig is designed to invite community engagement. Like all stages of the Bush Pump's

installation, boring the hole involves the whole community. But it isn't just the community's labour that is required to drill the hole and install the pump. No, a specific member of the community, the *nganga*, a village healer who can also act as a water diviner, is needed to find the location for the hole in the first place. Without consulting the *nganga* the village might not use the pump at all; different kinds of knowledge are required. Without the *nganga*, a pump may be able to provide clean water, but if the village avoid it in favour of another (dirtier) water source, it may not provide health. As de Laet and Mol point out, 'the pump is nothing without the community' (2000, p. 234); they make it, and in turn, over months and years, it may help make a community. But the boundaries of the Bush Pump, de Laet and Mol argue, are far bigger than just the village. designed and built in Zimbabwe to national standards, the funding for a pump often comes from the Government, and thus links villages, in what might otherwise be an abstract nation, to the State. The Bush Pump is a nation building technology. Indeed, the Zimbabwe Bush Pump 'B' Type works in many ways, but it also needs many things (people, infrastructures, knowledges, and maintenance) in order to do so.

But what does all of this mean for a police BWC? A BWC doesn't provide water, and a *nganga* doesn't need to be consulted for it to be installed, or do they? Maybe an expert who knows the lay of the land *is* required to implement effective deployment of BWCs. Like the pump, without proper installation and infrastructure, a BWC is nothing but black plastic box. Instead of a borehole, a BWC needs space in the police station, power, and data storage. It too must collaborate, but instead of a Vonder Rig, it needs a computer and software; perhaps it collaborates with other technologies. As we have established, BWCs can be measured. Statistics give us some idea of their effects, but not all. De Laet and Mol's discussion of the Bush Pump offers an exciting way of thinking about technology as loosely bounded, and as working in multiple ways. I will now briefly outline some of the methods, theoretical frameworks, and literatures that this research both draws on and contributes to.

The BWC is a great piece of product design: a shiny new solution for a longstanding problem. As designer I am fascinated by BWCs (which is lucky, as I have spent the last few years thinking and writing about them). On the one hand, I find the level of trust that seems to have been placed in the technology unsettling. I am uneasy about the idea that the answers to issues facing policing, or society more broadly for that matter, can only be found in the adoption of new and cutting-edge technologies. Technology might not be the answer. But, on the other hand, I am interested, dare I say excited, to more know more about the various ways BWCs work: how have officers made them part of their day-to-day working practices? And what kinds of realities and possibilities will they make possible? I should say, for clarity, that I'm not interested in making a new BWC. Instead, I want to know what the design features and aesthetic of existing BWCs mean, how claimed effects such as transparency are achieved, or not. I'm interested to know about the infrastructures, both obvious and hidden, that BWCs rely on. I want to know how, when, and why they stop working, and vitally, if they might work differently. I'm interested in what Lindström and Ståhl refer to as the 'aftermath of design', and the 'un/making of harmful relationships that have emerged in the aftermath of previous makings' (2020, p. 12).

As noted previously, this thesis draws on literatures and methods from design, criminology, and STS. The previous discussion of Mol's work, for example, highlights the applicability of STS literatures for helping us to think about the various ways in which technologies, such as a BWC, function, how their borders are loosely bounded, and crucially, this literature emphasises the significance of non-human actors. Throughout this introduction I have intentionally referred to the BWC as a 'black box' as a not-so-subtle nod to the notion of the

black box in STS literature. Bruno Latour describes black boxing as:

> … the way scientific and technical work is made invisible by its own success. When a machine runs efficiently, when a matter of fact is settled, one need focus only on its inputs and outputs and not on its internal complexity. Thus, paradoxically, the more science and technology succeed, the more opaque and obscure they become. (1999, p. 304)

This description of black-boxing, with its hidden internal complexity and opacity is certainly relevant for this black box: the BWC. One of the aims of this project is to engage with the BWC as a black box; to unsettle the BWC and make some of its internal complexity more visible.[13] But how to do this? And importantly, what does it mean to do so? How does STS relate to design, criminology, and the core principles and disciplinary aims of the two fields? Is it enough just to open the black box?

The link between design and science and technology studies (STS) has been drawn before (Ward and Wilkie, 2008; DiSalvo, 2014). Carl DiSalvo notes that 'one of the areas where design and science and technology studies (STS) have long intersected' (2014, p. 96), is politics. He highlights Langdon Winner's famous article *Do Artifacts Have Politics?* (1980) which, he says, 'launched a course of research in both design and STS on the role of designers and designed objects in "doing" politics' (2014, p. 96), a topic which is still hotly debated today. Ward and Wilkie similarly note the shared interest in, on the one hand, STS scholars taking interest in product design, architectural design, human-computer interaction (HCI) and generally 'exposing the significance of design as a 'creative' industry of serious significance within western capitalism' (2008, p. 2), and on the other, designers taking an interest in STS. They argue that following Latour, STS, and particularly Actor-Network Theory (ANT), can provide design with a 'renewed empiricism', and a way to approach 'objects as heterogeneous ensembles that are irreducible to single analytic categories, whether human, natural, social, [or] technological' (Ward and Wilkie, 2008, p. 2). Furthermore it provides an 'attention to and fascination with ontological multiplication' (2008, pp. 2–3), something expressed in de Laet and Mol's description of the bush pump. As will be discussed in more detail, ANT is not without criticism. Winner, in a paper provocatively titled 'On Opening the Black Box and Finding it Empty' (1993), suggests that in certain areas, social constructivism, which 'became a central interpretive scheme for the new field of Science and Technology Studies (STS)', (Lynch, 2016, p. 107) is somewhat wanting:

> … although [they] have opened the black box and shown a colourful array of social actors, processes, and images therein, the box they reveal is still a remarkably hollow one [...] they offer no judgment on what it all means other than to notice that some technological projects succeed and others fail, that new forms of power arise and other forms decline (Winner, 1993, pp. 374–5).

This is in many respects a valid criticism, especially when thought about in relation to some of the aims and principles central to design and criminology.

design, for instance, has been said to be the process of 'devising a course of action aimed and changing

[13] It should be noted that I mean 'internal complexity' rhetorically rather than literally. After all, we know, following Mol, that the boundaries of an object are wide.

existing situations into *preferred* ones' (Simon, 1998, p. 111 emphasis added). It is generative and productive, and through the creation of its various outcomes and artefacts, is concerned with the production of futures (Tonkinwise, 2015a, p. 7), and new words (Ward and Wilkie, 2008).[14] Design is often concerned with so called 'wicked problems' (Rittel and Webber, 1973); problems 'complex enough that no correct solutions exist a priori and for which formulating the situation is integral to addressing it' (Gaver, 2012, p. 940). Others have said that designs' 'raison d'être is to disrupt, contest, invent, direct, coordinate, respond, provoke and project' (Rodgers and Bremner, 2017, p. 28). Resultingly, design has quite unique epistemic qualities. There are, according to Cross, 'designerly ways of knowing' (2006), and it has been discussed as a 'mode of enquiry into the very conditions of the contemporary' (DiSalvo, 2018, p. 72). With these points in mind, it is easy to see why engaging with the black box or technology might be within both the scope and remit of design as a discipline. But designers don't just open the black box, they make judgements as they decide on and produce new artefacts and new realities.

Turning now to criminology, a classic definition of which is, 'the body of knowledge regarding crime as a social phenomenon. It includes within its scope the process of making laws, of breaking laws, and of reacting toward the breaking of laws' (Sutherland, 1934, p. 1). It is without doubt that BWCs, and the police who use them, are well within this broad definition. As might be expected in a discipline with a remit as large as this, there are a number of smaller sub-areas and a diverse range of methodological persuasions. The RCTs mentioned in the previous section, for example, are certainly criminology, however, not necessarily the criminology that this research is allied with, draws from, and contributes to. As has been established, this research is not concerned with positivism, nor is it concerned with whether BWCs are value for money, or how well they work. As we have seen, *working* is a broad concept anyway. Instead, this research is more closely aligned to cultural and critical criminologies. Cultural criminology is founded on the concept that 'cultural dynamics carry within them the meaning of crime' (Ferrell *et al.*, 2008, p. 2). It investigates crime and its control as 'cultural processes, processes where meaning is constructed and displayed' (Ferrell *et al.*, 2008, p. 205).[15] It takes aim at some of the outcomes, or the 'facts' of positivist, or what the authors call 'orthodox' approaches: 'we can see these 'facts' for what they are: myopic snapshots of a moving world, more deserving of critical interrogation than unthinking acceptance' (Ferrell *et al.*, 2008, p. 195); a line much in keeping with de Laet and Mol's discussion of the Bush Pump. Cultural criminology, it is argued, is able to attend to the conditions of late modern societies which are characterised by 'ontological anxiety', where 'mediated images loop and spiral' (Ferrell *et al.*, 2008, p. 205), and 'the line between the real and the virtual is profoundly and irrevocably blurred' (Hayward and Young, 2004, p. 259). Critical criminology is similarly uneasy about 'the accuracy of *official* crime statistics' (Sykes, 1974, p. 209 emphasis added). Described as something of 'an umbrella term' (Rafter and Brown, 2011, p. 147), critical criminology emerged in the 1970s and can broadly be defined as being attuned to the ways in which crime and justice relate to, and are underpinned by, power, and inequalities. It is characterised by, amongst other things, a 'skepticism' towards both 'any individualistic theory of crime causation' (Sykes, 1974, p. 208). Critical criminology in conjunction with cultural criminology is therefore interested attending to both the meaning of crime and its

[14] I emphasise *preferred* here to highlight that one designer's preferred might not be the same as another's. Indeed, decisions about which futures to produce is where design becomes political.

[15] It is worth noting here that the very notion of 'culture' as an entity in and of itself is thrown into question by ANT. This relationship between cultural criminology and ANT will be outlined more in following chapters.

control, and importantly, how these meanings relate to power.

Although cultural criminology pays attention to crime as a cultural process and recognises the significance of mediated images in the dynamics of crime and its control, strikingly little consideration is paid to technology and its role in this process. More broadly, criminology has been criticised as tending towards 'a number of binary divisions in its conceptions of the world' (Brown, 2006, p. 224), for instance, science and nature; nature and culture; or beings and things.[16] These binary divisions, Brown argues, are 'unsuited to the analysis of the complex technosocial characteristics of criminological phenomena' (2006, p. 224). Moreover, in cases where the technosocial has been addressed by criminology, it often is done so with entrenched assumptions which reflect a division of technology on the one hand, and the social on the other. In the case of cultural criminology, for example, science is represented 'as the attaché of administrative criminology', and objects looked at 'from the point of view of their symbolic or semiotic content' (Brown, 2006, p. 226).[17] Despite the lack of attention paid by criminologists to technology, it is certainly neither beyond the scope nor methodological limits of cultural criminology to begin to do so. Indeed, considering that technology plays an increasingly significant role in crime and its control, it is perhaps time it started to. Described as a 'loose federation of outlaw intellectual critiques' (Ferrell, 2007, p. 99), cultural criminology's borders are notably relaxed as an area of scholarship. It is a 'free intellectual space from which to launch critiques of orthodox criminology and criminal justice, and in which to develop humane alternatives' (Ferrell *et al.*, 2008, p. 210). This, as Ferrell *et al.* point out, keeps it 'open and invitational' (2008, p. 210). This openness also extended to cultural criminology's methods, meaning that it can be more attuned to the messy realities of the worlds crime takes place.[18] Because of its reflexivity, situatedness, and ability to give thick descriptions (Geertz, 1973), ethnography is a mainstay of cultural criminology. Indeed, Ferrell *et al.* discuss a multitude of different ethnographic approaches, such as 'instant', 'liquid' and 'visual' ethnography (2008). As will be discussed in following chapters, notably chapters Four and Six, ethnography is also a common method in both STS and design. Despite cultural criminology's emphasis on ethnography, it is worth emphasising that the door is left open for methods, that 'can catch the subtleties of transgressive situations while locating these situations in larger currents of meaning' (2008, p. 175).

This section has discussed how STS, design, and criminology might offer other ways of knowing about and understanding BWCs. STSs empirical attention to technology as something which is loosely bounded and multiple make it a useful analytic framework for thinking about a technology such as the BWC. There is some truth in Winner's critique: what is the point of opening the black box and revealing what's inside only to find what you're left with to be a hollow shell? Potentially design and criminology offer ways to overcome this criticism. Design's emphasis on the production of artefacts and new realities mean that designers are forced by the nature of their practice to make critical decisions; a *preferred* future, after all, implies that the one currently on offer is not up to scratch. Even if the aim, such as is the case with this project, is to use design as a way to engage

[16] Brown references Garland (1997) who highlights 'the dangers of over-simplified characterisations of criminology' (2006, p. 224), see also (Garland, 2001) for a discussion of ways in which criminologists have tried to overcome these dualities.

[17] It would appear that cultural criminologist's distain for the 'scientific' nature of orthodox criminology, favouring instead the more descriptive and humanistic approaches, has left them somewhat blindsided when it comes to thinking about intersections of technology and people.

[18] It is worth noting that the notion of 'mess' in relation to both the object of study and the methods used to study it is also used by STS scholars (Law, 2004), something that will be discussed in more detail in Chapter Five.

with an object of study and area of concern (a tool to open the black box) the outcomes produced to do this are imbued with meaning and do so from a critical position.[19] Cultural criminology, although at present not paying a great deal of attention to technology, offers both theoretical and methodological resources for thinking about the many ways in which BWCs work. Its attention to crime (and its control) as cultural processes mean that it interfaces well with the emphasis of enactment in some STS literatures (Mol, 2002). Criminology, allied with design and STS might therefore be able to attend to the role of objects and non-humans in the construction of crime as a social phenomenon.

1.6 – Aims, Audience & Structure

This research is design-led research about a piece of design. Deeply interdisciplinary, it aims to draw both theoretical and methodological connections between design, criminology, and STS. As noted above, it does not set out to solve BWCs as a problem, or necessarily argue for or against their use. Instead, it accepts that BWCs have rapidly become a key feature in the landscape of contemporary policing and look likely to continue play a central role. It is concerned with engaging with the BWC on a critical level, working out what else it might do, and offering an expanded understanding of it as a technology. Instead of proving or disproving the efficacy of BWCs, it is more concerned with finding questions that are not yet being asked. Knowing about police use of technology is especially important for policing in England and Wales, which, as will be discussed in more detail in Chapter Three, follows a consensual model. After all, how can we consent to something hidden in a black box? There are a number of audiences for the research. Firstly, given the topics that it is directly concerned with, the empirical findings of the research will be of interest to policing scholars and criminologists. Aspects of the project may also be of interest to the police, both individual officers and at a more organisational level. Secondly, sitting at the intersection of design and social research, the research offers a potential template for designers working on social research projects and as such aims to highlighting both the methodological opportunities and issues. Relatedly, from the other side of the fence, the methods used here may also be of interest to criminologists, especially those looking to expand their methodological palette and engage with the non-human actors of crime and its control. Finally, this project will be of interest to STS scholars, especially those interested in inventive (Lury and Wakeford, 2012) ways of doing social research.

The remainder of this thesis is structured as follows. Chapter Two gives more detail to these three disciplinary areas, discussed above, drawing connections between them, and discussing the relationship each has to three theoretical areas: technology, visibility, and politics. Drawing on the works of Andrew Barry (2001) and Annemarie Mol (2002), I will argue that technology is indivisible from both the human and the social, and also that, by focusing on practice, that is to say, taking into account how objects are 'performed' or 'enacted', we can think of technology (and subsequently the BWC) as being multiple. Relatedly, that any particular political qualities or salience a BWC might have as a result, both of the way it is enacted and its association with other devices, infrastructures, knowledges, and bodies. In relation to these ideas, and drawing on John Thompson's (2005) conception of 'the new visibility', I will suggest BWCs and the visibility that they produce should be thought about in relation to other forms of visibility, for instance, that produced by smartphones. Building on

[19] I use the word products quite loosely here, as will be discussed later in the thesis, products can refer to a range of design outputs and outcomes.

the first two chapters, Chapter Three introduces the context of this study, namely, the police in England and Wales. The chapter discusses some of their distinct features and the consensual model by which they police, and critically outlines the connections between police visibility, notions of transparency, police accountability, and legitimacy. It argues that technology has long played a role in how the police are made visible, with significant implications for both accountability and legitimacy, and that it is helpful to consider BWCs in relation to this history. Chapter Four then outlines how this research has been conducted and, from a methodological perspective, its connections to the various disciplines it draws on. Three epistemic key approaches, making, observing, and speculating are discussed. These, broadly speaking, correspond to the following three substantive chapters. In Chapter Four, the idea that research might be multi-sited (Marcus, 1995) will be discussed, in relation to this project. Chapter Four also discusses some of the practicalities in regard to conducting field research with the police, and the ethical considerations that have been considered. Three substantive chapters then follow. Chapter Five discusses making as a unique knowledge producing activity. Various making activities are described as a way to 'get inside' the BWC, generate ideas, define territories of interest, and of course, produce outcomes. Chapter Six, based on observations conducted during fieldwork with police in the West of England, describes how I observed officers using BWCs in their day-to-day work. Drawing on Barry's concept of 'interactivity' (2001), the chapter examines the BWC at three different scales or intimacies: police bodies, another police technology (specifically TASER), and the idea of an organisational culture. Chapter Seven returns to the outcomes of making, discussed in Chapter Five, and describes their use with police officers in Fritton, to engender specific conversations, and engage in 'inventive problem making' (Michael, 2016).[20] Finally, Chapter Eight concludes the thesis, discussing the various findings (methodological, empirical, and theoretical), and the contribution the research makes to diverse readerships.

[20] Fritton, as explained more later in the thesis, is a pseudonym and does not refer to the town in Norfolk.

Anecdote: Holding a BWC

Before starting this PhD, during my Masters, I completed a smaller project about BWCs (at this time, between 2014 – 2015, police in England and Wales were in the process of rolling out BWCs). Suffice to say I've been thinking about BWCs for quite a while. Throughout this time, whenever I see a police officer on the street, out of habit, I check to see which camera they're wearing. Over the years I think I've developed a pretty good idea what most officers will say if asked about the camera on their chest: "it's a great bit of kit".

I know all about this technology. I know what the buttons do: how to turn one on, and how to start recording. I know where the ports for charging and transferring data are. I know my Axon Body 2 from my Axon Body 3, my Reveal Media D3 from my Reveal Media D7. I know which BWCs have 32GB storage and which have 63GB; which are Wi-Fi enabled, and which aren't. I can tell you how big they are, and how much they weigh, the resolution of the footage and the angle of their lens. I can hold my own pretty well in conversations about BWCs with police, and in the pub, I can talk for ages about this little black box.

All of this, and I have probably held a police BWC in my hands fewer than a dozen times. I must admit, when I've visited police stations and officers *have* passed me one to hold, I've felt a flutter of excitement. Finally, a chance to hold something that has become such a big part of my life. A strange sensation indeed. This soon wears off – they do say never meet your heroes! I could try to use it. I could attach it to my body and record some footage, but it would be a different thing; it's not the same technology without a uniform really. The BWC is interesting because of who's wearing it. I pass the camera back. The conversation, usually about how easy they are to use and how important they are, continues. The BWC to me is fascinating, a thing to think about. The BWC to them is more mundane: a tool, a great bit of kit.

Chapter Two:
Paying Attention to BWCs: Technology, Visibility & Politics

2.1 – Introduction

As noted in the previous chapter, this research considers the BWC as a piece of design, in other words, as an object or a thing. As will be discussed, paying attention to objects, thinking of the social as being made up of both human and nonhuman actors is central to a number of STS approaches, notably ANT (Latour, 2005). This chapter begins with a discussion of some of the central principles of ANT, its suitability for analysing the BWC, and by outlining how it intersects with both design and criminology. The chapter also discusses some of the criticisms that have been made of ANT, with ways in which these might be overcome, suggested. This will involve a discussion of design and criminological literature, but also feminist STS scholarship, for instance, Donna Haraway's work, and some so called 'post-ANT' literature, namely, Annemarie Mol's book *The Body Multiple: Ontology in Medical Practice* (2002). Following this, the chapter is composed of three parts that reflect three separate, but interlinked, conceptual themes of the thesis: technology, visibility, and politics. One of the aims of the chapter is to establish definitions for these and to provide theoretical framing for them. Technology, as will be discussed more in Chapter Four, is both a *subject* but also, importantly, a *method* in this research; any definition of technology, therefore, will need to work for both the BWC and also for the design outcomes and products that have been produced, as a way to make sense of it. One of the ways that this is done is to shift focus slightly, from objects in and of themselves, to the way they are practiced or enacted (Mol, 2002). Visibility, too, is central, both to the BWC (the camera allows us to see things which once we could not), and the police (the way which the police are seen by the public is important, as will be discussed in the following chapter), but also connected to ideas of knowledge production; the ideas of 'shedding light' on a subject or 'opening the black box' are about making visible. In terms of politics, the question of whether artefacts can be political has long been asked by STS scholars (Winner, 1980), something touched on in the previous chapter. design opens up objects to the question of politics, and has been described as a place where STS and the political intersect (DiSalvo, 2014). Whereas critical criminology, concerned with the power, as noted in the previous chapter, means that it too is concerned with the political. The idea of politics will also be discussed in relation to the shift from objects to enactment, and in relation to the focus on visibility. Finally, the chapter will conclude by drawing connections between the three previous areas and the outlining the terms that will be used throughout the remainder of the thesis.

2.2 – Paying Attention to Objects.

A vast array of objects, from bikes (Bijker, 1995) and aircraft (Law, 2002), to door-stoppers (Latour, 1988a), air-quality meters (Barry, 2001), liver disease (Law and Singleton, 2005), and atherosclerosis (Mol, 2002), not forgetting bush pumps (de Laet and Mol, 2000), have all been the focus of attention of STS scholars. As was shown with the description of the Zimbabwe Bush Pump in the previous chapter, objects play important roles in how societies are structured and how social life is lived. Graham Harman suggests that this renewed attention to objects can be traced to a roadside between Dijon and Gray in 1972, where a young Bruno Latour had had an epiphany, "[n]othing can be reduced to anything else, nothing can be deduced from anything else, everything may be allied to everything else." (Latour, 1988b, p. 163).[1] Following this, Harman argues, 'an entire philosophy is foreshadowed' (Harman, 2009, p. 13). He goes on to explain:

[1] According to Google Maps, and considering the significance of non-human actors, this road in France seems to be the D70.

> [e]very human and nonhuman object now stands by itself as a force to reckon with. No actor, however trivial, will be dismissed as mere noise in comparison with its essence, its context, its physical body, or its conditions of possibility. Everything will be absolutely concrete; all objects and all modes of dealing with objects will now be on the same footing (Harman, 2009, p. 13).

This is a bold claim. That a chair, a thesis, a bush pump, a prison, I the writer, and you, the reader, a BWC, just like a police officer, humans and nonhumans, are ontologically equal. In *Resembling the Social: An Introduction to Actor Network Theory* (2005), which, it is worth noting, Latour refers to as a 'how-to-book', we are reminded (on numerous occasions) to 'follow the actors themselves' (2005, p. 12). As a theory, or perhaps more appropriately, as a 'method', ANT suggests that in order to understand the social we must pay empirical attention to objects, or rather, 'actors'. Indeed, 'the crucial analytical move made by actor-network writers', is a 'suggestion that the social is nothing other than patterned networks of heterogeneous materials' (Law, 1992, p. 1). In doing so this brings into question 'where an entity begins (human and non-human) and where it ends' (Robert and Dufresne, 2015, p. 3); does a BWC exist without a body to wear it? Central to ANT is the idea that to understand the social, one must pay empirical attention and follow the actors.

Thinking of society as a heterogeneous 'network' of actors is, as Law (1992) points out, a radical step. Not least because it decentres the human and says that they might not be the most important thing in any given actor network. Having said that, as a structure for analysing how objects (such as a BWC for instance) function and bring about new social realities, it is productive. We can follow the actors and trace the connections. ANT provides a way to question our teaspoons (Perec, 1997), no doubt explaining its success.[1] Nonetheless, as touched on above, ANT has come under some criticism, not least from ANT scholars themselves; Latour even spoke of 'recalling the theory' (Law, 1999, p. 11). One criticism is that it is overly simplistic, and therefore lacks the ability to apprehend complexity (Law, 1999, p. 8). Similarly, that there is an over reliance on the network as a metaphor, and that an implied spatiality limits ANT (Mol and Law, 1994).[2] Haraway is likewise critical of ANT because it seems to suggest there are 'preformed, modular subjects' (1994, p. 64) out there waiting to be discovered, or 'hunted', by the heroic, and, most likely, White, male academic. Whereas Harman takes aim at the inability of ANT to account of the future of an actor (2009, p. 166), the network locking actors into a static system. Despite these criticisms, the central ideas of ANT, that objects deserve attention, that they act, and that the social is formed as a result of the connections between varied actors (both human and nonhuman), are useful for what follows in the remainder of this chapter, and this thesis more generally. What does this mean for thinking about a police BWC? And more broadly, what does this mean for designers or criminologists to pay attention to objects in a Latourian, or indeed ANT, sense? I will begin with design, before moving on to discuss its significance to criminology.

Designers are certainly no strangers to paying attention to objects; they're obsessed by them. I have lost count of the number of discussions about a minute detail of a chamfer, or what height and specific shade of a particular colour a stool should be. Designers bring objects and products into being. They have a role in the production of many of the nonhuman subjects which become the object of study for STS and ANT scholars. Aircraft, bush

[1] One could argue that ANT is a victim of its own success: ANT too is an actor, and ANT acts!
[2] In other words, the idea of the 'network' presupposes a specific image of connections between actors.

pumps, and BWCs are all designed. Designers make new ways of being, and new forms of sociality possible. The idea you could reach into your pocket, pull out a 'phone' and take a picture of an arrest, and then share it online with the world would seem unthinkable years ago. Now it is simply part of life, with a host of political and social ramifications. It is, perhaps, no surprise then, that there is a has been somewhat of a courtship between design and STS, and more specifically, design and ANT.

Albena Yaneva highlights the potential of ANT for design, noting that it 'does not limit its analysis to the structure of objects', and that instead ANT 'shows how every single technical feature of an object accounts for a social, psychological and economical world' (2009, p. 276). Moreover, as every good designer knows:

> … design is not merely a beautiful aesthetic envelope that covers objects and makes [things] pleasurable. Instead, design has a social goal and mobilizes social means to achieve it, thus striving to enrich not to diminish, to fortify not to weaken the public bonds (2009, p. 276).

ANT, then, offers designers a useful way of thinking about their role and responsibility (though admittedly perhaps too few do) in the production of 'the social'. It should be noted that these ideas are not altogether new. Indeed, in the early 1980s, design historians Fran Hannah and Tim Puckman were discussing design in similar terms:

> … [d]esigning is relational in character, and these relations fix on objects, but the objects are not then fixed with an immutable significance forever. The production of design increases its complexity as a social process; the designed object enters into new relations of valuation and of consumption. (1996, p. 270)

Designs are therefore continually reconstituted, through their relationships with people and other objects. Designers will envisage a particular set of relations, but these are by no extent the *only* relations a design will have. A good example being a disposable facemask floating in the ocean long after its intended use, and the particular wave of a pandemic has passed. This, as Hannah and Puckman point out, means that there cannot be just one design history, but that instead 'there must be multiple design histories' (1996, p. 270), foreshadowing, in many ways, some of the ideas central to STS and ANT scholarship, notably the idea of multiplicity, a topic I will return to in due course.

Ward and Wilkie (2008) make similar observations to Yaneva. Describing a series of workshops and projects by undergraduate design students, they suggest that STS offers a way of 'understanding of the complex negotiations and mediations that designers are required to act within' and that it 'promotes an ideational process with a derivation in the empirical world' (2008, p. 4).[3] Further still, they suggest that design might begin to answer Harman's criticism that the future of the actor is left unanswered. Designers, they claim, can act as 'material-semiotic storytellers' (2008, p. 5) adopting a role in both the production of new worlds, and also the communication of possibility and hope. Designers, they say, can engage in what Haraway calls 'materialized refiguration', participating in the way that worlds are made and unmade, and making a difference, however modest (1994). To summarise, STS, and more specifically ANT, provides designers with both a conceptual lens for thinking about, and

[3] It is worth noting that the author was once one of those undergraduate students, and that, whilst perhaps not being fully cognisant of the underlying philosophical principles of the activities at the time, has certainly incorporated many of the aims of them into their academic practice – arguably, ANT acted.

engaging with, their role in the production of the social.[4] It should be highlighted that one of the upshots of objects having a role in the production of the social is, of course, that it means that design is political, I will return to this below.

Criminology historically has a less direct relationship with objects. Some argue that, despite a growing interest in social sciences, criminology 'did not fully take the 'material turn' (Savoie *et al.*, 2017, p. 79), this is despite the fact that 'crime control practices necessarily involve the use of devices' (Robert and Dufresne, 2015, p. 2). In instances where objects are considered, criminology has been criticised for a tendency towards a binary and hierarchical division between humans and nonhumans (Brown, 2006). Savoie *et al.* argue that this is evident in two ways. Firstly, that criminology often treats technology as a 'thin object', and secondly, that it tends to think about it as a single entity (2017, p. 79). There are a number of ways in which criminologists have tended think of objects as thin. Firstly, by reducing objects to their stated purpose. As the example of the Bush Pump in the previous chapter reveals, to do this is a mistake, as has been established, objects (designs) work in many 'grades and shades' (de Laet and Mol, 2000, p. 225), they are not fixed and they are perpetually reconstituted. Secondly, criminology tends think of technology as something which 'completely shapes our relationships' (Savoie *et al.* 2017, p. 81). This somewhat deterministic view reduces technology to simply a force. The RCTs into BWCs described in the introduction are salient examples of this. Finally, criminology can reduce technology to a sign, treating it as symbolic of what is really going on in society. Michel Foucault's description of the panopticon, something I will return to below, is a good example of this. In the case of the BWC, the device simply becomes a stand in for discussions around ever-increasing surveillance or the expansion of police powers, without really getting to grips with, or investigating the new forms of, social order it produces and makes possible. It is worth noting that in certain circumstances each of the three perspectives above is potentially valid, but each takes its own singular, and partial, view to what technology is, does, and means.

As an answer to the above, Savoie *et al.* argue for a 'slow criminology of socio-technical orderings' (2017), invoking Isabelle Stengers' call to 'slow down' (2018). Stengers talks of 'the art of dealing with, and learning from, what scientists too often consider messy, that is, what escapes general, so-called objective, categories' (2018, p. 120). This is in response to the increasing imperative of the knowledge economy to not waste time and to produce 'competitive' research (often at the behest of industry), meaning that corners are cut, and things left unattended . This notion of slowing down, it should be noted, is in many respects analogous with the goals of critical criminology, as discussed in the previous chapter, in the sense that it is a search for meaning beyond a limited set of objective categories. By paying attention to objects and by carefully following the actors, this slow criminology can move from 'thin objects' towards 'thick things' (Latour, 2007, p. 140). Objects, viewed as such, can be polysemous and ontologically multiple, an idea I will return to again below. Such a criminology can attend to the significant and complex role that objects play in crime and its control; might erode the hierarchies between humans and nonhumans; consider technology as more than instrumental, a force, or a symbol, and in doing so be able to consider better the role of such objects in how culture is materially constituted. This, as Savoie *et al.* point out, might mean crossing the disciplinary boundaries and being more inclusive as a discipline (2017), which is certainly encouraging for this project. I will return to Stengers' notion of 'slowness' again in Chapter Five, discussing some ways in which it might be practically achieved.

[4] In many ways it is its slightly reductive nature that is part of its attraction as a methodological approach.

2.3 – Technology

Until now I have talked of objects and technology somewhat interchangeably. In this section I will draw some distinctions, establishing a clearer definition of what I mean when I refer to 'technology' in the remainder of the thesis. In doing so, I will also discuss further how a technology can be multiple, and I will argue that the central role that technology plays in contemporary societies results in a very specific set of problems, attitudes, and models of social and political order. In order to do this I will draw on two texts, Andrew Barry's *Political Machines: Governing a Technological Society* (2001), and Annmarie Mol's *The Body Multiple: Ontology in Medical Practice* (2002).

Barry draws a distinction between technology and a technical device. He describes technology as 'any kind of association of devices, techniques, skills or artefacts which is intended to perform a particular task' (2001, p. 7), and a technical device 'as a material or immaterial artefact' (2001, p. 9). Technology, in Barry's description, implies action. It involves technical devices in a relationship with other things, such as 'knowledge, skill, diagrams, charts, calculations and energy' (2001, p. 9). The particular task the technology might perform therefore depends on a diverse range of other devices, infrastructures, knowledges. Following Barry, technology is not divisible from the human and the social; as Barry points out, it 'plays a formative part in making up what we are as humans, and what we take to be social institutions (2001, p. 8). In the context of the police, there can be no such thing as the police without police technology. Technology, for instance their uniform or radios, play a vital role in how the police are conceived and constituted.

Haraway, in a similar vein, talks of 'cyborgs' (2016), echoing, perhaps more poetically, the intertwining or merging of technological and human capacities, to the point where it becomes impossible to know where one ends and the other begins. This line of thinking certainly lends itself to considering a BWC. Although few officers are likely to describe themselves as cyborgs it must be said, the introduction of BWCs to both officers' bodies and to their day-to-day practices undoubtedly signifies an intertwining of the human and technological; officers learn to adapt to their devices and find various new and inventive ways to incorporate them into their day-to-day work. This further underscores why thinking of objects and technology as thin and doing *only* their stated purpose is problematic. Staying with the BWC for a moment, and returning to Barry's description of technology, the BWC becomes a technology when it is put towards a specific task and through its association with a range of other devices, skills, practices, and infrastructures. Commonly, these tasks have been regarded as reducing use-of-force, and complaints, but they could equally be something entirely different. A BWC might become a technology for entertainment, or a technology which is used to promote a particular image of the police as being technologically advanced, for instance. A BWC could even be put to use to hold a door open, although an officer's superiors might have something to say about this. This view of technology, however, raises an important philosophical question: if a technical device can be arranged in multiple ways to form different technologies, are these technologies the same, or do we, in fact, have multiple technologies, a different BWC for reducing use-of-force, for entertainment, for promoting the police via news media, and for holding a door open?

The topic of multiplicity is something which is poetically discussed by Annemarie Mol, in her book *The Body Multiple: Ontology in Medical Practice* (2002). Although Mol's object of study is a disease, atherosclerosis, not a technology, the emphasis she places on the way in which the disease is *enacted* is useful for thinking about

technology, and in this case, a BWC.[5] From a more methodological perspective, Mol's focus on enactments means that it is possible to 'ethnographically explore' (Mol, 2002, p. ix) an object of study in all of its multiple realities, ideas I will return to in Chapter Four. This shift from thinking about actors, locked in a network, to thinking about *enactment*, is a small but a vital one. As Mol explains:

> If practices are foregrounded there is no longer a single passive object in the middle, waiting to be seen from the point of view of seemingly endless series of perspectives. Instead, objects come into being and disappear with the practices in which they are manipulated. And since the object of manipulation tends to differ from one practice to another, reality multiplies (Mol, 2002, p. 5)

Reality multiplies? In order to explain this somewhat counterintuitive idea, Mol describes how atherosclerosis was enacted, or 'done', in two settings within Hospital Z (the site of her study). In the department of pathology, for example, atherosclerosis involves a leg, tweezers and a scalpel, some coloured dyes and, critically, a microscope. A leg is cut from the body and a section of the artery cut from this leg. This section of artery is then dyed, placed between glass, and put under the microscope. Atherosclerosis in the pathology department is made visible. In a clinical setting, however, doctors 'feel the pulsations of dorsal foot arteries in patients whose legs hurt when they walk' (2002, p. 34), they look at the legs: are they pale? And they ask questions: 'where does it hurt, how long can you walk, does it stop when you rest?' (2002, p. 29). In the clinic, atherosclerosis is felt. These two examples, both from inside Hospital Z, highlight two very different, and quite incompatible, ways in which the disease atherosclerosis is enacted.[6] One involves cutting, dyeing and examining cells; the other, pain, questions, and feeling legs. Importantly, Mol is careful to point out, this isn't the same disease described from two different perspectives, but two quite different things, two separate objects. If reality is borne out of practice, then these are two ontologically distinct objects, both atherosclerosis, but neither the same.

What has atherosclerosis got to do with a police BWC though? My claim is that, just as atherosclerosis is multiple (enacted in different ways, by different people, and in different contexts), the BWC is multiple too. It too is done, or enacted, in multiple ways. Drawing a link between Barry and Mol, both emphasise the centrality of the human in technology, and we can now think of technologies as arrangements of devices, skills, knowledges, and infrastructures which are *enacted* in order to achieve various goals. Indeed, Barry even claims to be 'ambivalent about technology' (2001, p. 8), principally because of indivisibility of the technological and the human and social. To Barry, there is no technology on the one hand and social on the other, instead the social is technical in nature.[7] This notion is central to the main argument of his book: that we live in a 'technological society' (2001, p. 8). This notion of the technological society is worth some attention, principally because it might begin to shed light both on the emergence of BWCs, the conditions in which they are enacted, and because it starts to explain the relationship between the technological and the political, a topic which will be discussed in more detail below.

In saying that we live in a 'technological society', Barry is not wishing to claim that society is *more* technological

[5] Atherosclerosis is 'a disease of thickened vessel walls that makes it difficult for blood to pass through the arteria in the legs' (Jensen and Winthereik, 2005).
[6] Mol highlights other ways in which the disease is enacted, for example, to a patient, atherosclerosis is pain and something which is incompatible with walking their dogs.
[7] This is of course the same idea that underpins ANT.

than it was before, nor is he trying to mark an 'epochal shift from an earlier form of society (industrial, modern, capitalist) or a later (technological) one' (2001, p. 2). Instead, he says, he aims to 'interrogate a specific contemporary political preoccupation'. He explains:

> This is political preoccupation with the promise technology poses, with the potential benefits it promises, and with the models of social and political order it seems to make available. We live in a technological society, I argue, to the extent that specific technologies dominate our sense of the kind of problems that government and politics must address, and the solutions that we must adopt. Technological society is one that takes technical change to be the model of political invention. The concept of a technological society does not refer to a standard history, but rather to a specific set of attitudes towards the political present which have required particularly contemporary intensity, salience and form (Barry, 2001, p. 2).

Whilst Barry's focus is the significance of technology to ideas of politics and geography, there are a number of ideas in this passage, and the notion of a technological society more broadly, which are pertinent here. Firstly, the idea that there is *promise* in technology, and the belief that it can provide us new models of social and political order. This certainly seems true in the case of the BWC. Secondly, the idea that technology is both the source of, but also the solution to, issues we might face. And thirdly, that the technological society signifies a specific set of attitudes; a 'qualitative' shift in the way in which we think and act (2001, p. 216). As was discussed in the previous chapter, BWCs have emerged (and become widely adopted) at a time when concerns about police brutality are keenly felt. The smartphone has changed the way we think and act in society and it has brought about a shift in the nature of our streets. The 'snapshot culture', described by Sandberg and Ugelvik (2016), is emblematic of this shift, and the new forms of social and political order that Barry speaks of.[8] As such, whilst police brutality has long existed, the advent of the smartphone has resulted in greater visibility of it, thus making it a political issue.[9] To be clear, smartphones do not cause police brutality, however, they raise awareness of it, meaning that a solution, in this case a technological one in the form of a BWC, is required.

Technological societies, Barry argues, require the formation of new human capacities (2001, p. 4). As alluded to above, the introduction of the BWC requires new practices, behaviours, and labour on the part of the officers who wear them, something also noted by Kelly Gates (2016). Noting Foucault's (1975) discussion of the relationship between bodies and objects, Barry argues that because technologies increasingly involve a 'degree of play and flexibility between the [device] and the user's body' (2001, p. 148) we might think of 'interactive technologies', rather than of 'disciplinary' ones.[10] Barry says interactive technologies, an idea I will return to again, are 'intended to excite curiosity of the body and its senses; resulting in anticipated effects on the intellectual productivity, questioning and

[8] Barry points out that the contemporary public sphere is similarly transformed by technology: it 'cannot be understood as something like a set of spaces in which rational discussion simply takes place in and unmediated fashion [...] [r]ather they are arrangements of people and technical devices formed in particular settings, within which it is possible to articulate a range of rhetorical forms' (2001, p. 10).

[9] This is certainly not to say that it was not an issue before, rather to point out that, as a result of greater visibility, the matter of police visibility has greater political salience.

[10] Foucault notes that 'Over the whole surface of contact between the body and the object it handles, power is introduced, fastening them to one another. It constitutes a body-weapon, body-tool, body-machine complex. [...] Thus, disciplinary power appears to have the function not so much of deduction as of synthesis, not so much of exploitation of the product as of coercive link with the apparatus of production.' (1975, p. 153).

creativity of those who interact' (2001, p. 149). Kelly Gates describes the mounting of a camera to the body as 'an intimate act' and, whilst highlighting some obvious privacy concerns in relation to BWC use, suggests that far from being a disciplinary tool, that the personal perspective which the cameras offer might be useful in showing others 'intimate glimpses of the daily challenges they face on the job' (2016, p. 419). This seems, in some respects, at odds with a history of police innovations '[I]nnovations in communication and information technologies in policing have not only increased police potential to exert social control over populations, but have also reflected inwards, increasing bureaucratic control over front-line police' (Wilson, 2018, p. 117). As such this, highlights that technologies can be enacted in different ways.[11] Gates even suggests that officers might develop a close bond with their cameras, something akin to the connection one might have with a smartphone. The concept of interactivity in relation to technology is a useful way of thinking about the BWC, which, rather than disciplining officers, instead offers them opportunity to reimagine their work, and to exercise a degree of creative control over it. This concept informs later chapters. Part of the BWCs interactivity comes from its potential to make images and produce visibility. Interactivity allows us the scope to consider how users leverage the BWCs potential to produce visibility in a range of settings and for different uses.

2.4 – Visibility

One of the defining characteristics of a BWC is that it produces images; in other words, it makes things visible. But it is also a technology that operates within, and is potentially a solution to, a new kind of hyper-visibility that is brought about as a result of widespread use of smartphones. John Thompson discusses some of the characteristics and consequences of what he refers to as 'the new visibility', both in his book *The Media and Modernity: A Social Theory of the Media* (1995), and in a paper titled *The New Visibility* (2005).[12] Significantly, he notes that technology plays a central role in the changing dynamics of visibility.

Thompson says that in order to understand the new visibility 'we must first understand the ways in which the development of communication media has transformed the nature of social interaction' (2005, p. 32). He begins by outlining three forms of interaction. First, there is face-to-face interaction. This takes place between two or more parties within a specific locale. Face-to-face interaction involves 'co-presence' which means that it is both dialogical in nature (information travels both ways), and has a 'common spatial-temporal framework' (2005, p. 32) (people are in the same place at the same time). Another characteristic of face-to-face communication is the richness and volume of symbolic cues, (we can read someone's tone or body language). The development of communication media, for instance letters and later the telephone, created a second form of interaction, what he terms 'mediated interaction'. Mediated forms of interaction retain some of the dialogical nature of face-to-face communication (information travels both ways), but they distort or 'stretch' its spatial-temporal framework. Mediated interaction also results in a 'narrowing of the range of symbolic cues' (2005, p. 33). In simple terms, by using communication media such as a letter, we can interact with persons who are not within our immediate vicinity and at a different time, but we do so with a much narrower range of symbolic information available to us. The production of communicative artefacts and materials, for example, books, newspapers, radio, film and TV, constitute a third form

[11] It is certainly the case that BWCs open front-line officers up to bureaucratic control and surveillance from superiors.
[12] It is worth noting that both these texts predate BWCs and the sheer ubiquity of smartphones. The points made remain pertinent, however.

communication, what Thompson calls 'mediated quasi-interaction' (2005, p. 33). Mediated quasi-interaction shares some of the features of mediated interaction (communication can take place in different spaces and at different times) and, although maybe having a richer symbolic repertoire to draw on, is still limited when compared to face-to-face interaction. A defining feature of mediated quasi-interaction is that it is 'monological' (information travels in one direction).

The rise of communication media, Thompson argues, has resulted in new forms of visibility.[13] In other words, as a result of technology, and the forms of 'mediated' and 'quasi-mediated' interaction it allows, 'visibility is freed from the spatial and temporal properties of the here and now' (2005, p. 35). With this new visibility, however, comes the qualities of the communication media by which it is carried. Critically too, the kinds of visibility offered via forms of quasi-mediated interaction are monological in nature. In order to evidence the significance of new forms mediated visibility, Thompson describes its role in politics (with a big P), a domain where its implications are particularly keenly felt. Historically, Thompson points out that leaders were only seen in co-presence, managing their visibility through highly staged public appearances such as coronations. The rise of mediated forms of visibility such as print media, and later, film and TV, meant that political leaders were increasingly able (and required) to make mediated appearances. This offered new possibilities to those who understood how to manage these appearances but would be problematic for those less adept at the construction and maintenance of their image through these means. Moreover, mediation would offer new ways to undermine political rivals by disrupting and damaging this public image by revealing what was previously hidden from view. Opponents could now leak information and reveal images in order to undermine and damage a leader's reputation, an idea I will return to shortly. Thompson makes clear that the rise of mediated forms of visibility has not replaced face-to-face visibility, but rather that it has supplemented it, and that, increasingly, mediated visibility plays a significant role in the dynamics of power.

What are the effects of this new visibility that Thompson describes, and how does it relate to the technological society, as outlined by Barry? Thompson notes that 'we live in a world of high media visibility', and that 'the information environment is more intensive, more extensive and less controllable than it was in the past' (2005, p. 48). Achieving visibility through the media 'is to gain a kind of presence or recognition in the public space' whereas as an 'inability to achieve visibility through the media can confine one to obscurity' (2005, p. 49). Resultingly, as mediated visibility becomes 'a principal means by which social and political struggles are articulated and carried out' (2005, p. 49), what Thompson refers to as 'struggles for visibility' are of increasing importance. Barry's assessment of the nature of the spaces where politics takes places is in many ways similar:

> [t]he contemporary public sphere cannot be understood as something like a set of spaces in which rational discussion simply takes place in an unmediated fashion. They are not like the Greek polis of the modern political imagination. Rather they are arrangements of persons and technical devices formed in particular settings, within which it is possible to articulate a range of rhetorical forms (Barry, 2001, p. 10).

[13] Thompson recognises that 'personal computers' and the internet have added a host of additional communicative possibilities and refers to this as 'computer mediated interaction' (2005, p. 34). Nonetheless, he notes that despite these each having its unique qualities it can still be analysed using a similar 'interactional approach' as described above.

Both Barry and Thompson recognise that visibility and politics are increasingly technical in nature. Much like Barry, Thompson recognises the significance and role of 'constantly changing technologies' in the dynamics of power in contemporary societies (2005, p. 49). Whereas Barry's conception of a technological society, and especially his emphasis on interactivity, adds an interesting dimension to Thompson's description of the politics within the conditions of the new visibility.

Elsewhere, Thompson describes the significant political effects that result from the ability of mediated images to circulate far beyond the immediate locales in which they were produced. His example, the racially motivated beating of Rodney King in 1991, is especially connected to the subject of this thesis. Rodney King, a Black man driving his car at night in Los Angeles in 1991, was pulled over, beaten with batons, kicked, and shot with an electrical stun-gun. The incident was recorded on a home video camera by George Holliday, a member of the public who happened to be in the vicinity. The footage was widely circulated in the media, and when the officers were later acquitted, rioting ensued. As Thompson notes, the footage 'touched a raw nerve. It had captured a distressing but nevertheless altogether ordinary event [and] lifted it out of its spatial temporal setting' (1995, p. 248). It made what was a day-to-day experience for many Black citizens in Los Angeles (and around the world) visible to a mass audience. The footage raised awareness and made the incident (more) political. This incident would, in many respects, foreshadow the new era of holding power to account by making misdemeanours visible, as discussed in the introductory chapter of the thesis.

Returning to Barry's conception of interactivity, Holliday's video camera (and now the smartphone) can, in many respects, be thought of as the epitome of the kind of interactive technology (exciting creativity and productivity from its user) that Barry describes. Moreover, in this instance, it would seem to be a key component in a the construction of an 'active citizen' (Barry, 2001, p. 127), and critically, a device which makes a particular form of social and political action possible. The video camera and smartphone within these contexts are also surely an example of a technological solution to societal issues. In conclusion, the new visibility can be seen as inseparable from the technological society that Barry talks of, indeed it can perhaps even be thought of as a defining feature of it.

2.5 – Politics

Previously, I have stated that technology makes certain forms of sociality and political order possible, and relatedly, that design, because it is concerned with the production of new ways of being and ways of doing, the social is political. I have also drawn links between visibility and politics at both practical and epistemological levels. This section discusses what is meant by 'politics' in this research, expanding on the relationship between politics and technology, and considering specifically the relationship that the BWC has with both visibility and politics. This section will also briefly elaborate on the political stance taken in this project.

Barry takes a broad view of what constitutes the political. He talks about politics, not in relation to political parties or parliaments, but instead 'as the way in which artefacts, activities or practices become objects of contestation' (2001, p. 6), the political in this case is 'an index of space of contestation and dissensus' (2001, p. 7). This notion of politics draws heavily on Foucault's conception of government, which is to be understood not as an institution, but rather both as 'a *practice* of government and self-government' (Barry, 2001, p. 5 emphasis added). Barry recognises the focus on the technical in Foucault's work, saying that, for Foucault, government 'is inevitably a

technical matter' and that it 'relies on an array of more or less formalised and more less specialised technical devices' (Barry, 2001, p. 5). This expanded view of government, in turn, 'opens up a much broader field of politics to inspection' (Barry, 2001, p. 5), and potentially begs the question of whether specific artefacts might themselves have politics?

DiSalvo notes that 'the question of whether or not artifacts 'have' politics has been, and continues to be, a point of contention' (2014, p. 96). Certainly, within STS, the question has been fiercely debated (Winner, 1980, 1993; Woolgar, 1991). Given Barry's view that the practice of government is a technical matter, we might be led to believe that he regards technology to be political and that artefacts have politics. This is partly true. Barry, argues that 'techniques and devices can *become* political' (2001, p. 9 emphasis added), but this is only because they are indivisible from the human and the social. Barry, in many ways, shifts the focus from technical devices towards human and social, a shift which is in keeping with the focus on the enactment of objects, following Mol. Barry highlights that that technology 'is often viewed as something that exists outside of politics', and that, 'the deployment of technology is often seen as a way of avoiding the noise and irrationally of political conflict' (2001, p. 7). Consequently, he argues that technology is used as a way of evading or circumscribing the political, and that, technical methods and instruments are used in attempts to somehow access an uncontested reality, in doing so, avoiding political dissensus. The notion that we can design out conflict and dissensus through the adoption of technical devices certainly resonates with much of the discussion that surrounds the deployment of BWCs discussed in the previous chapter. We often hear about BWCs being able to offer "an objective viewpoint", the technology seemingly offering access to some kind of politically neutral reality. Certainly, technologies can be more or less political, and more or less compatible with certain forms of social order but this as Barry points out is only as a result of their arrangement with other 'artefacts, practices and techniques, instruments, languages and bodies' (2001, p. 11). A BWC, and the footage it produces, are more or less political and make particular kinds of social order possible *because* of these arrangements; a BWC in my hands means something very different, and has a different political significance, to one which is worn by a police officer.

Barry's ideas regarding politics and technology are compatible with design. The act of designing – which, recalling Simon's conception from the previous chapter, can be conceived of as the act of 'devising a course of action aimed and changing existing situations into preferred ones' (1998, p. 111) – in Barry's view, is political, because '[a]ny attempt to contest or challenge the social order may then involve – and probably will involve – an effort to contest the development and deployment of technology as well' (2001, p. 9). In this sense, design is political, both because it necessarily involves a judgement in regard to the status quo, and because it will likely involve technology, both ideas I will return to shortly.[14] Previously, I noted that in a shift from Foucault's notion of disciplinarity, Barry suggests we think of interactive rather than disciplinary technologies. Foucault gives a number of examples of disciplinary technologies, but perhaps the most well-known, and the most relevant when talking about our BWC, is his description of Bentham's design for the panopticon (1975). Indeed, within both academic literature and the mass-media, BWCs are frequently discussed in relation to the panopticon (Anthamatten, 2015). This is, perhaps, unsurprising, considering the centrality of visibility to the functioning of both devices, the fact that BWCs are often discussed as an extension of state surveillance (Adams and Mastracci, 2017), and, as has been

[14] Design could be argued to be engaged in ontological politics (Mol, 1999), and questions about which realities are brought into being.

established, that much of the existing research focuses on BWCs supposed deterrent qualities. Nonetheless, despite similarities, using the panopticon as a generalisable theoretical model for BWCs is a mistake. Not because the panopticon *cannot* describe the dynamics of power at play (sometimes it can), but instead because it tends to be applied to the BWC in an overly simplistic manner, and because often far too literal parallels are drawn.[15] This of course echoes the criticisms of Savoie *et al.*, of criminology conceiving too often of 'thin objects', discussed previously.

Considering the centrality of the panopticon to debates about BWCs, it, and its critiques, are worth brief discussion here. Bentham's design for the panopticon (of which, incidentally, only two were ever built) is a circular prison with a central watch tower. Its design renders all of its inhabitants perpetually open to the possibility of visibility; prisoners are forced to acquiesce to the rules of the prison. In the panopticon, power is rendered into physical form. Foucault uses the panopticon too, as a model to describe the organisation of power in modern Western societies, saying, '[i]n appearance, it is merely the solution of a technical problem; but, through it, a whole type of society emerges' (Foucault, 1975, p. 216). For Foucault, it is reflective of a shift brought about as a result of modernity, from a system of corporal punishment to one of surveillance and disciplinary power. This description of the panopticon is not without criticism. Thompson argues, for instance, that, despite highlighting 'with characteristic brilliance the importance of visibility as a means of exercising power' (2005, p. 40) 'Foucault's argument is very partial at best' (2005, p. 39), a view shared with Thomas Mathiesen (1997). Mathiesen questions the neglect, or perhaps intentional omission, of the media, in Foucault's writing, and asks whether Foucault is right to say we have moved '*from* a situation where the many see the few *to* a situation where the few see the many' (1997, p. 219 emphasis in original). This omission is likewise raised by Thompson, who says that '[w]hereas the panopticon renders many people visible to a few, the media enable a few people to be visible to many' (2005, p. 40). He notes that whilst there certainly has been growth in panoptic technologies (that render many visible to few) this has been mirrored with a simultaneous growth in synoptic ones, (technologies which allow the many to see the few).[16] With these points in mind, and considering that since both these critiques were written we have shifted from a 'viewer society' (Mathiesen, 1997) to one with a greater focus on the *production* of media (Yesil, 2011), the suitability of the panopticon for thinking about the BWC is highly questionable. Indeed, both Thompson and Mathiesen's, arguments add further weight to Barry's claim of a technological society, and for thinking of interactive technologies over disciplinary ones; the panopticon implies a singular function achieved via unmediated unidirectional visibility. The BWC, on the other hand, can have many functions and exists in a world of mediated mass visibility where we 'struggle for visibility' (Thompson, 2005).

In this section I have outlined technology's relationship to politics, and some of the political implications of visibility. I have suggested that the BWC is a device, *within* a technological society, that can be *enacted* in specific ways (and with political ramifications) to respond, contribute, and act within the conditions of the new visibility, as outlined by Thompson. Visibility has been discussed as both a condition (a feature of a technological society) and as

[15] In many ways, much like critics of ANT argue that the network implies a particular spatiality and logic, the panopticon, in my view, tends to shape and limit thinking about BWCs in a similar way.

[16] 'The concept is composed of the Greek word 'syn' which stands for together or at the same time, and 'opticon', which is concerned with optics and the visual. It may be used to represent the situation where a large number focuses on something in common which is condensed. In other words, it may stand for the opposite of the situation where the few see the many' (1997, p. 219).

an effect (something which can be achieved by technological means), but it has also featured in this chapter as a metaphor. Ferrell *et al*., for instance, who talk of the 'facts' produced by orthodox criminologies as 'myopic snapshots of a moving world' (2008, p. 195), draw on the idea of sight and vision and its relationship with knowledge. Whereas Mol warns against perspectivism (Mol, 2002). I myself have suggested that this project aims to 'shed light' on the topic of BWCs by 'opening the black box of technology'. All these metaphors draw on the ideas of visibility and invisibility, of making visible, through scholarly work, what is hidden, something which too is a political act.

Haraway insists on the 'embodied nature of all vision' (1988, p. 581). Her concept of 'situated knowledges' foregrounds that *all* knowledge comes from a specific viewpoint, and thus, can only ever be partial. She argues that seemingly limitless visualising technologies, such as sonography systems, scanning electron microscopes, satellite surveillance systems, and cameras for every purpose (of which the BWC is surely one), are part of 'a history of science tied to militarism, capitalism, colonialism, and male supremacy', and are a 'god trick': an illusion of seemingly being able to see everything from nowhere (2016, p. 581). By insisting on embodied vision, she dissolves claims to any singular, objective viewpoint. Nothing is without mediation according to Haraway, 'only partial perspective promises objective vision' (1988, p. 583). This notion of situated knowledge, and emphasis of partiality is of course highly compatible with Mol's ideas around of multiplicity; if objects are multiple then can be no *singular* objective god-like view. The notion of situated knowledge informs this project and is returned to again in later chapters.

2.6 – Conclusion

This chapter has drawn some theoretical links between design, criminology, and STS. It began by discussing how and why we might pay attention to objects. The chapter argued that STS, and more specifically ANT, offers designers both a way of thinking about their role in the production of the social, and a way to study empirically the complexity of the worlds they, and their designs, produce. In the case of criminology, ANT was suggested as offering a way to begin to think about the role of objects in crime and its control; a way to move beyond overly simple conceptions objects, as instrumental, or a force that shape relationships completely or, as symbols that represent some higher social order.

Three broad conceptual areas were then discussed: technology, visibility, and politics. Drawing on Barry (2001), I argued that technology was indivisible from the human social and plays a formative part in what we are as humans, what we think of as social organisations, and as such the spaces and ways in which the political is performed. This definition is compatible both with BWCs, and with conceptions of design that recognise its role in the formation of new forms of social reality. In conjunction with Mol's (2002) description of enactment, this allows us to consider the BWC as being enacted in multiple ways. Following both Mol and Barry, I suggested that the BWC can be conceived of as being an interactive device, one which excites creativity from its user rather than disciplines them. Visibility is central to the BWC, but also to the conditions in which it operates, namely 'The new visibility' (Thompson, 2005). This new visibility introduces, by technical means, new spaces and techniques of politics and can be seen as a characteristic of a technological society as described by Barry. I then discussed the matter of technology having politics. Bearing in mind that Barry says that technology is indivisible from the human and the social, and Mol's argument is that we might focus on how objects are enacted, I argued that the BWC *is* political, but that it is as a result of the way it is enacted and its arrangement with other devices, infrastructures, knowledges, and bodies.

Finally, I discussed the political in relation to visibility, and the epistemic aims of this research. Following Haraway, I suggested we might think not of objective truths, but rather of situated knowledges and partial perspectives. This is not an abdication of the political; as Haraway reminds us, '[i]f technology, like language, is a form of life, we cannot afford neutrality about its constitution and sustenance' (1994, p. 62).

Anecdote: It's the Police!

Unsurprisingly, since starting this project I've taken particular interest in the police. In the summer of 2019, I'd sometimes knock off work (reading about the police) early, and cycle down to Parliament Square to watch them at work. That summer there were a lot of protests. *Extinction Rebellion*, and both pro-Brexit and anti-Brexit demonstrations frequently seemed to converge on the area around the Houses of Parliament (sometimes simultaneously, which was interesting). Watching officers became a way to process what I was reading. I'd observe their uniform, their kit, and generally how they conducted and organised themselves. Occasionally, I would chat to an officer, asking them if they'd had 'refs' (refreshments), or, because they were often on mutual aid, where they had been drafted in from.[17] We'd have a quick chat about BWCs, they'd give me their thoughts, and I'd let them get back to what they were doing.

I've never been a huge fan of police TV shows, but I watch for 'research' purposes. Steve McQueen's *Red White and Blue* (2020) was fantastic, and *Happy Valley* (2014– present) is also very good, as are old episodes of *The Sweeney* (1975–1978). The reality shows like *Police Camera Action!* (1994–2010) are interesting, especially from a production perspective. But nothing really compares to *The Blue Lamp* (1950). In the news I find police appearances are often really stilted and overly scripted – they can't please everyone, but often they please nobody – it's not an easy task. Social media is more interesting. Twitter accounts by individual officers (especially the anonymous ones) offer more candid and self-reflexive insights into policing. Instagram is fascinating too. It always seems to be where the interesting footage of major policing events can be located. The 2020 *Black Lives Matter* protests are a good example or this, with dozens of live streams of the events shared by participants. I also keep an eye on the official police Instagram accounts. There seems to be a lot of experimenting with new forms and styles of public engagement taking place – an area ripe for more research I'd say. It seems like I see the police in the street, and on the screen, more than I used to. But that's maybe just because I'm looking out for them. My vantage point has shifted as I have progressed with this research. I certainly know far more about the police than I did. But at the same time, I'd say I have fewer hard and fast opinions about them.

[17] Mutual aid is a system for sharing police officers between forces. For instance, an officer might be drafted in from Surrey or Essex constabularies to cover a protest in London.

Chapter Three:
A Technological History of Police Visibility in England & Wales

3.1 – Introduction

The previous two chapters introduced both the subject of this study, police BWCs, and some theoretical literature which can help make sense of it. Before continuing it is important to give some more specificity in regard to which 'police' I am referring to, and to give some detail regarding some of their unique characteristics. This chapter makes two key arguments. First, that throughout history, technology has played a central role in how the police are made visible to those they police, and therefore has implications for how ideas of transparency, accountability and legitimacy are achieved. And secondly, that the emergence and use of BWCs by police in England and Wales can best be understood if thought about in relation to this history. The chapter will draw on both primary and secondary sources and will return, on occasion, to some of the theoretical literature discussed in the previous chapter. The chapter is structured as follows. Initially, it begins with a discussion of some of the defining features of the police in England and Wales.[1] In relation to these features, links between police visibility, and police accountability, legitimacy, and transparency are then considered. Following this the bulk of the chapter is then composed of three sections. These trace the history of the police in England and Wales, since their formal conception in 1829 (Emsley, 1996) to present day, discussing periods where changes to both technology and visibility have been particularly significant. Before making some final conclusions, the chapter will argue that we have entered (and are potentially quite far into) a new era in policing in England and Wales, one which BWCs are both emblematic and key components of. It should be noted that this chapter is by no means an attempt to provide a full or comprehensive account of the police in England and Wales. Instead, the chapter is an attempt to position a relatively novel police technology in relation to some of those that have preceded it, and to give it some historical, organisational, and cultural context.

3.2.1 – What are the Police?

In a speech at the 2011 Conservative Party conference, Theresa May, the then home secretary, said of the police, "we need them to be the tough, no-nonsense crime-fighters they signed up to become" (May, 2011). Throughout the speech, May leverages a common-sense conception of what the police should be (tough, no-nonsense), and, perhaps more importantly what they should do (fight crime). This was undoubtedly a rhetorically effective move by a Home Secretary who, at the time, was implementing significant cuts. That said, this description and the image it is intended to evoke, is not only a reductive description of the role and function of the police (in reality they do much more than fight crime) but is also inconsistent with the demands set by the public.[2] Policing certainly does involve fighting crime, it frequently involves being enormously tough, and at times, being no-nonsense. But it also involves compassion, care, and complexity.[3] Police work, as will be shown later in this thesis, also involves lots of paperwork and patience. It is a fact that the police do much more than fight crime, and as such have been described as dealing with 'every kind of emergency' (Bittner, 2005, p. 150). Robert Reiner notes that police work is 'neither social service nor law enforcement, but order maintenance – the settlement of conflicts, potentially crimes, by means other than formal law enforcement' (2013, p. 166). As Reiner's point suggests, hard and fast definitions of police work are not

[1] Although this research examines specifically use of BWCs by the police in England and Wales, there will be some generalisable findings.
[2] In many respects, May recognises and leverages the symbolic functions of the police, see for instance (Loader, 1997).
[3] John Sutherland's book, *Blue: A Memoir – Keeping the Peace and Falling to Pieces* (2018), is a great example of compassion, care and kindness in policing.

easily found. Indeed, in many respects, the best way of establishing what the police are is not by asking *what* they do, but instead, *how* they do it. In this case, one of the clearest ways of defining the police is by their authority to use force (and other powers not available to ordinary citizens) on behalf of the state, in order to achieve their ends (Brodeur, 2010).[4] This definition is useful because it explains not only how the police perform a range of policing duties, and the social dynamics that frame them, but also why the police are so frequently at the centre of controversy; the misuse (or perceived misuse) of force frequently being a key point of criticism. Incidentally it also perhaps explains the attraction of some of the fictional portrayals of the police (which, as the chapter will show, is highly significant to our understanding of police); the potential for use-of-force is a source of jeopardy within the narrative.

Policing in England and Wales is done so by consent (Mawby, 2008). This sets it apart from many other police forces around the world. As a result, how the police are seen by the public, both in a literal and a metaphorical sense, is of utmost importance. Positive public perception not only affords the police a moral authority and legitimacy, but also provides them with a strategic and operational advantage (Bradford, 2014; Tyler and Fagan, 2006), something that has been historically termed 'the British police advantage' (Manwaring-White, 1983, p. 213). Just as positive public perceptions benefit the police, negative perceptions can be the source of trouble, resulting in a breakdown of trust and public support. Robert Mawby argues that in order to nurture good perceptions and maintain this advantage, the police have always practiced some form of 'image work' (2001). Image work, conducted both by officers, but also increasingly, by citizen employees, involves a range of practices (conducting press releases, interviews, and more recently the management of social media accounts) that are concerned with 'promoting, projecting and protecting the police image' (Mawby, 2001, p. 44). Recalling some of the discussion in the previous chapter, connections can easily be drawn between the need for police image work and Thompson's discussion of 'struggles for visibility' (2005, p. 49). This chapter will explore the role of technology in relation to police visibility, how image work is done, and public perceptions of policing.

3.2.2 – Police Legitimacy, Accountability & Transparency

Considering that BWCs produce visibility, and that they are discussed as a way of ensuring police legitimacy (McKay and Lee, 2020), the relationship between both police visibility and their legitimacy deserves attention. Police legitimacy, Tyler notes, can be considered as being composed of two elements (2011). First, 'the belief that police officers are trustworthy, honest and concerned about the well-being of the people they deal with' (2011, p. 256). Second, that their 'authority ought to be accepted and people should voluntarily defer to police decisions and directives' (2011, p. 256). Legitimacy is then a mixture of top-down legislative authority (power granted by the state) and a more slippery bottom-up authority granted by the public. Legitimacy is directly related to accountability. Accountability can be thought of as the extent to which the police are held to account for their actions (Jones, 2008). It too can be broken down into individual accountability (the procedures and administrative systems by which individual officers are held to account for their actions) and organisational accountability (the control, monitoring, and organisation of policies and styles of policing) (Reiner, 1995).[5] Accountability is therefore a

[4] Reiner points out that this does not mean that the police *always* use force, but that 'the craft of effective policing is to use the background possibility of legitimate coercion so skillfully that it does not need to be foregrounded' (2013, p. 166).
[5] The BWC is interesting within this dynamic as it offers a way for individuals to be held to account, and at the same time, its roll out to all front-line officers isa policy which suggests a level of organisational accountability.

mechanism in which police can achieve legitimacy: members of the public trust the police and follow their instructions because they know that if the police break the rules they will be held to account. The relationship between accountability and legitimacy hinges on transparency; that the police are 'open and honest in communications and operations' (White and Malm, 2020, p. 19). In short, we need the systems of accountability to be transparent so that they can be trusted.

BWCs, as discussed in Chapter One, are argued to make policing more accountable (Dominiczak, 2013). This accountability is supposedly achieved through the 'mechanically objective qualities of cameras' (Brucato, 2015, p. 458). By making police actions visible, increased levels of transparency are argued to follow. BWCs certainly produce visibility and offer a completely new way of seeing what the police do (Barrett, 2013; Dominiczak, 2013; Quinn, 2014; Peachey, 2016; Hymas, 2018). Having said that, as the remainder of this chapter will discuss, police visibility is not, and arguably has never been, a prerequisite for greater levels of transparency. Visibility has long been mediated by various forms of technology, and the relationship between visibility and transparency is rarely a symmetrical one. Indeed, recalling Thompson's points raised in the previous chapter, mediated visibility, stripped of the breadth and depth of symbolic cues, carries with it the qualities of the communication media by which it is delivered (2005). Nonetheless, as the remainder of this chapter will show, throughout history, visibility, and perhaps more importantly, the management and mismanagement of visibility by technological means, has played hugely significant role in police legitimacy and policing by consent.

3.3 – Policing the Streets: Bobbies in Blue

This section considers the police since their formal conception and formation until the mid-20th century. During this period visibility was largely contingent on face-to-face interaction (seeing an officer on the street). Two key technologies are considered in this section, police uniform and police boxes.

In 1828, six years after an initial parliamentary select committee had found that 'a large, centralised police force would be inconsistent with traditions of English liberty' (Emsley, 1996, p. 23), a number of legal reforms paved the way for Sir Robert Peel to pass the Metropolitan Police Act (1829). The first 'Peelers', or 'Bobbies' (named after Peel himself) began to patrol the streets of London in 1829.[6] Hostility to the idea of police was not only reflected in the symbolic framing of this new metropolitan force as being 'of the people', 'non-political' and 'non-military', an ethos outlined in the Peelian Principles (Emsley, 2014), it is also evident in the design of this new police force.[7] The 'Peelers' uniform for instance, worn at all times during this period in order to quell suspicions of spying, consisted of a blue, swallow-tailed coat, black boots, black trousers in winter and white in summer, and a black, straight-sided top hat (Czerny, 2016). The choices of a blue tunic, rather than red, and a top hat, rather than a helmet, were both deliberate decisions in order to make a clear, visible, and symbolic distinction from the uniform worn by the military at the time.

[6] It was not for another ten years, however, until legislation (County Police Act 1839) would allow for the creation of similar modern police forces in counties other than London, further underscoring a hostility towards the idea of the police, not all would do so. Indeed, It wouldn't be until 1856 when it would become compulsory for a police force to be created in every county in the country (County and Borough Police Act 1856) and the era of modern policing would truly begin.
[7] The political impartiality of the police was undoubtedly critical in getting the legislation passed (de Lint, Virta and Deukmedjian, 2007, p. 1633).

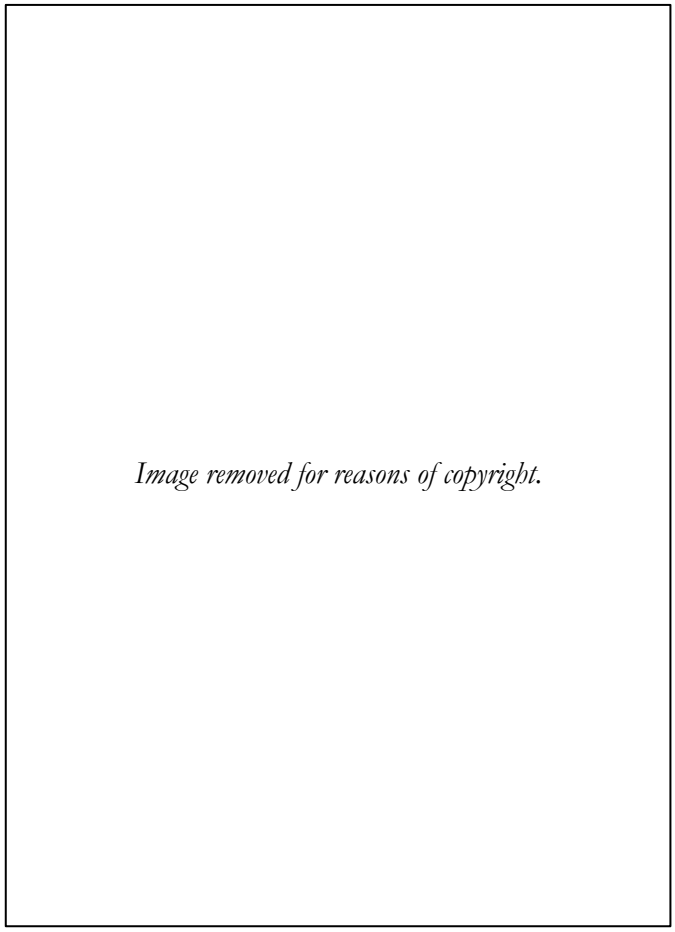

Fig. – 6 'Peeler' of the Metropolitan Police — circa *1850s*

A constable's duty was to prevent rather than investigate crimes. Uniform was important in how this was achieved, after all it is a 'powerful [reminder] 'of the authority of the police' (Crank, 2004, p. 239). Considered as a device by which interaction is conducted (Paperman, 2003), uniform functions as a technology that produces visibility. In relation to this, we can also think of how it helps to facilitate accountability and legitimacy.[8] Recalling Thompson's discussion of interaction and visibility, discussed in the previous chapter, accountability and legitimacy for this early police was achieved through face-to-face interaction; seeing uniformed officers acting fairly and justly on the street, in shared spatial and temporal framework. In co-presence, uniform renders the police and their actions transparent. The requirement for this early police to wear uniform at all times is indicative of its role in achieving legitimacy, removing the question of a sworn in officer of the law being undercover. More recently, instances where police have covered their collar numbers (which identify them personally) has also been regarded as an avoidance of accountability (Cecil, 2009). The uniform acts as an interface between the public and the legislative powers of the state. Decisions such as the blue (not red) tunic and the top hat symbolise a distinction between this new police and the army. Uniform, arguably, can be thought of as a technology that *produces* police officers; the wearer *becomes* a symbol of state power when they put it on. Relatedly, some argue that the uniform also makes the wearer anonymous, as Young points out, 'the structural invisibility enjoyed by the wearer is a strange matter to experience. You become a symbol with no personal identity beyond a small, specific numeral on the shoulder' (1991, p. 67).

[8] Uniform of course has multiple functions in addition to visibility, for instance, the collar, tall and made of leather, was designed to protect from being garroting.

Some of these ideas I will return to in later chapters.

The expansion of cities throughout the 19th century put extra pressure on the police. On some beats (small policing areas dedicated to one officer) the number of houses increased ten-fold (Bunker, 1988). This expansion led one superintendent to note, in 1868, that, 'the original guarantee that that the member of the public remaining in one location in the street for a short time would be certain to *see* a constable was no longer achievable' (Bunker, 1988:15, emphasis added). A technological solution was sought, and 'fixed points' came into existence. Fixed points, pre-agreed locations often in isolated or "disorderly' districts' (Bunker, 1988, p. 145), were places where an officer would be present at specific times. Fixed points are an interesting example of a policy designed, in the face of increased demand, specifically to produce and manage visibility. But the late 1800s brought other pressures. l the mid-1800s the Industrial Revolution ushered in a period of intense technological and social change, but significantly, by the beginning of the 20th century, Britain's population had nearly doubled. The railway, for instance, meant that criminals were increasingly mobile and able to evade the police. Technology was changing the spatial qualities of crime and its control. A somewhat uncharacteristic police response to this shift in criminal mobility is summed up neatly with the arrest of Percy Lefroy Mapleton on the London, Brighton and South Coast Railway in 1881. Wanted for murder in London, Mapleton's portrait was published in a national newspaper, subsequently leading to his arrest. Mediated images were now part of crime control. Despite this success, as a result of institutional conservativism, the sharing of information in the media was not encouraged by senior police at the time (Bunker, 1988). Nonetheless, crime and policing were topics of interest for the press, and police legitimacy was increasingly contingent on a mixture face to face *and* mediated visibility. Throughout the late-1800s, close attention was paid to both specific crimes (Jack the Ripper, an infamous case of an unidentified serial killer in the East End of London being an obvious example), and also to technological developments in policing. *Punch* magazine, for instance, described the connection of police stations with the telegram as a 'terrible new foe' for those breaking the law, criminals would now be 'nabbed through electricity' (Lemon *et al.*, 1852, p. 84). Despite acknowledgement, from the press at least, that technology might play an important role in policing, the police themselves were somewhat slow to take advantage of emerging technologies. The sluggish adoption of the telephone at the turn of the century is a salient example, with the Home Secretary at the time pointing out that the existing telegram system met all police requirements (HC Debate, 1899). Emsley suggests that this was due to a combination of expense and organisational structure, but also a degree of institutional conservatism (1996).

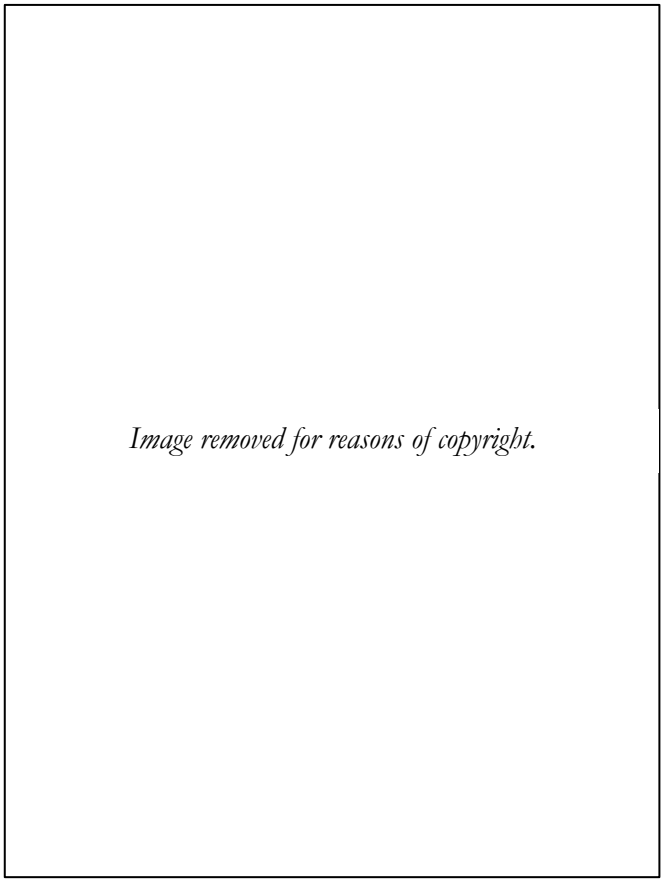

Fig. – 7 Police callbox, Radiolympia Exhibition – 1936

Despite hesitancy, there are, nonetheless, examples in the late 1800s early 1900s of police in England and Wales beginning to experiment with technology. Fixed points were increasingly being connected to police stations, first by telegraph and later the telephone, allowing for an increasing flow of communication between the police station and officers on the street. In some instances, for example in Norbury, London, in 1906, the introduction of this kind of technological innovation was a direct result of public pressure (Bunker, 1988), highlighting an early example of relationship between the public and police adoption of technology. By the late 1920s it was recognised that this 'callbox' system could provide efficiency gains and resultingly the number of callboxes grew, becoming recognisable features on the streets, with some even functioning almost as mini-police stations in their own right. Technology was playing an increasing role in policing. Although only officers were allowed inside callboxes, the public were now permitted to contact police stations directly using a phone accessible from the outside, a small but highly important shift in the nature of the public's relationship with the police. The 1936 *Radiolympia Exhibition* at Olympia, Earls Court, London, featured the most up-to-date iteration of the police callbox, designed by Gilbert Mackenzie Trench (see Fig. – 7).[9] The exhibition promoted the use of the technology by the public to call a newly created 'information room' (what would later become 999) and can, in many respects, be seen as both the genesis of a more responsive form of policing, and a shift from face-to-face interaction with the police, streets towards a new, technologically mediated era.

[9] This style of police box would later become famous as the *TARDIS*, in the television programme, *Dr Who*.

3.4 – Streets to Screens: Policing the Media

After the Second World War, growth in film and television, coupled with shifting social attitudes, began to have implications for police legitimacy. This section considers the shifting nature of police visibility and the increasing significance of mediated images between the mid-20th century until the early 1990s.

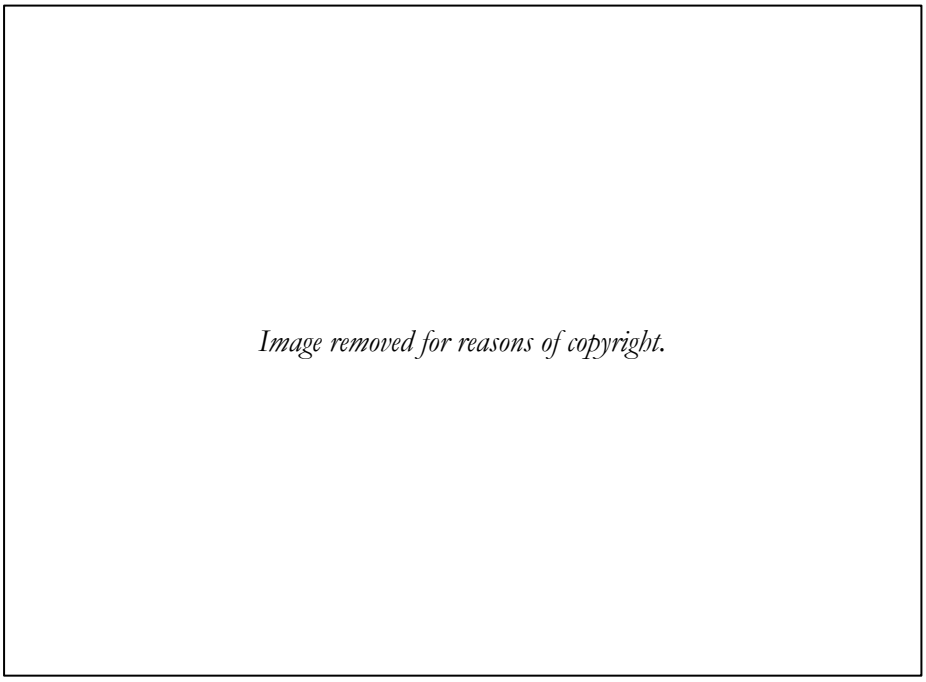

Fig. – 8 Jack Warner as George Dixon and Jimmy Hanley as Andy Mitchell in The Blue Lamp *(1950)*

The idea of the 'Bobby on the beat' – to this day symbolic of a halcyon era of policing – is personified in many respects in George Dixon, a character in the Ealing Studio classic *The Blue Lamp* (1950) (see Fig. – 8). Inspired by the real-life murder of a Police Constable, Nathaniel Edgar, in 1948, *The Blue Lamp* is reflective of the public's growing unease about the rising crime in the post-war period (McLaughlin, 2005), and is a reminder that the boundaries between police fact and police fiction have long been blurred. Amongst this changing social landscape, the film's production team were given unparalleled access to locations, and personnel, by Scotland Yard and the Metropolitan Police, giving the film an almost quasi-documentary style. This, clearly, is a marked shift from the reluctance to engage with the media, discussed in the previous section, and in relation to Mawby's (2001) conception of image work; *The Blue Lamp* is an interesting development in the construction and management of the police image. With *The Blue Lamp*, the media (and fiction) are used to produce and manipulate visibility for strategic ends. The increasingly popular medium of cinema functioning as a technology by which the police could both exhibit their efficiency and promote new technological resources. The film would allow the police to recast the traditional 'Bobby', shifting him away from the dozy, bumbling, pre-war character, to a more respected role, and one that was connected to an increasingly sophisticated, and effective, Criminal Investigation Department (CID).[10] So successful was Dixon that he was brought back to life in the BBC's hugely popular *Dixon of Dock Green* (1955–1976). Even in

[10] The 'Bobby on the beat' role does seem to be predominantly male. Although after the Second World War there was a growth in the number of women police in 1950, they made up only a small fraction of serving constables. For a more detailed history of the role of women in policing see Joan Lock's classic *The British Police Woman* (1979). For more contemporary accounts of women policing see also (Heidensohn, 1992; Brown and Heidensohn, 2000).

the 1950s, however, Dixon was a throwback, as Emsley notes, 'Dixon knew everyone on his beat, and was known by everyone' (2003, p. 170). Following Dixon there was a proliferation of police and policing represented in the media, with policing shows accounting for a large proportion of the most popular television programmes and films (Allen *et al.*, 1998). These shows would reflect the changing social, cultural, and economic dynamics at the time, and the police responses to them. They also marked a shift in how many of the public saw the police: from real-life officers patrolling streets corners to fictional ones patrolling the corners of their television screens.

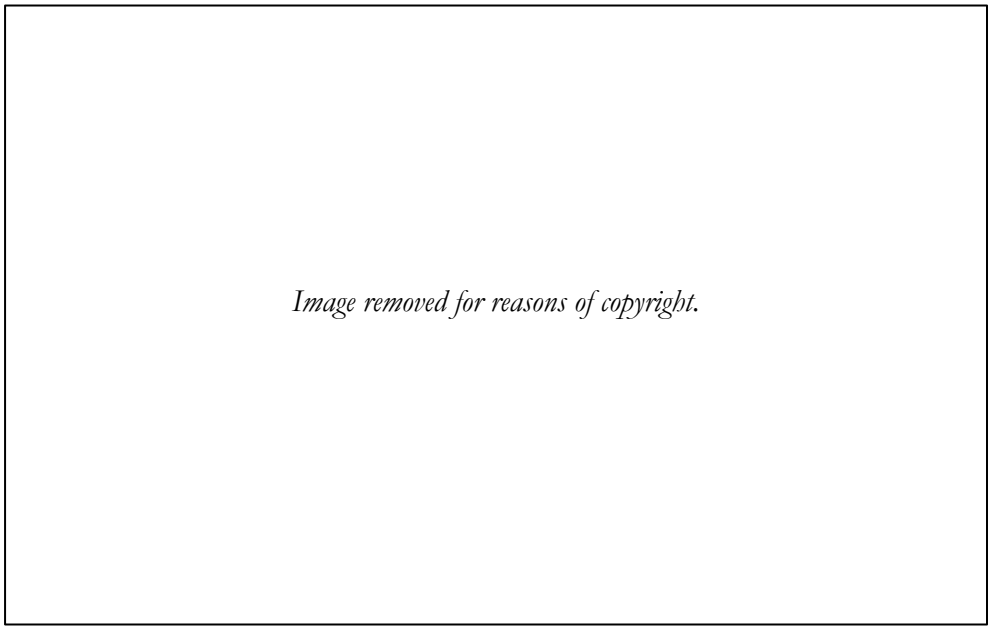

Fig. – 9 Still from Z Cars *(1962)*

Z Cars (1962–1978) (see Fig. – 9), for example, reflected the changing social attitudes of the 1960s, its gritty social realism a departure from the softer, cosier, *Dixon of Dock Green*. The show would also incorporate the newly introduced personal police radios and the growing use of motorcars, the technologies quite literally driving forces within *Z Cars* narrative, but also policing at large. The new 'unit beat' system was making use of communication and speed advantages of radios and the motorcar.[11] The unit beat system partially replaced the foot-patrol beat in favour of larger policing zones, by allowing constables to be in constant and ongoing contact with a centralised controller. This controller, informed by the latest information, could dispatch cars (and officers) quickly to incidents (Manwaring-White, 1983). The advent of this new system was widely praised in Parliament for not only increasing efficiency, but also the morale of officers (HC Debate, 1967). In 1968, the new system also featured in a public information film produced by the Government in collaboration with the Cheshire Constabulary (see Fig. – 10), highlighting again the strategic use of film as means of promoting an image of technologically advanced and cutting-edge police work.

[11] Viewed from an ANT perspective, the Unit Beat system can be thought of being composed of various actors, which come together to make a new form of policing. The car and the radio, for instance, are vital in how this actor network is composed.

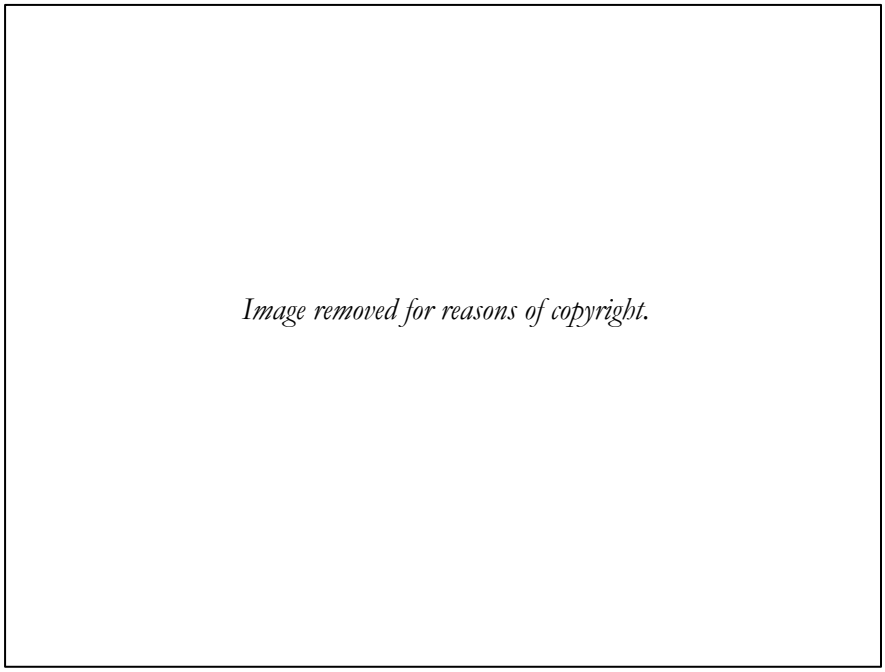

Fig. – 10 Unit Beat Policing – *Public information film BFI (1968)*

The designers of the unit beat system intended that the motorcar and the personal radio would boost efficiency whilst simultaneously maintaining relations with the public. In practice, the latter was never really achieved, and the system has been referred to disparagingly as a 'fire brigade' policing style (Reiner, 2010).[12] There were several reasons suggested as to why the system failed to achieve its potential. One being a lack of staffing resources (something the system was supposedly a solution to), meaning that there were too few officers to maintain a community presence. Another being the way in which the technologies (especially the car) interacted with an existing police culture, which emphasised speed and hedonism (something I will return to in Chapter Six). The introduction of the unit beat system, or rather, the failures of the unit beat system, had significant implications for the visibility of the police. Once seen as an individual walking the streets, the police were now only visible in a car driving through them, or on people's televisions; the Bobby on the beat was far less approachable when tearing down the street in a Ford Zephyr (see Fig. – 11).

[12] It is worth noting that such a policing model also alters the relationship between officers and their superiors, writing about the use of radios some time earlier, in the United States, Dean Wilson points out, 'the patrol officer could also be checked on frequently and without notice' (2019b, p. 3)

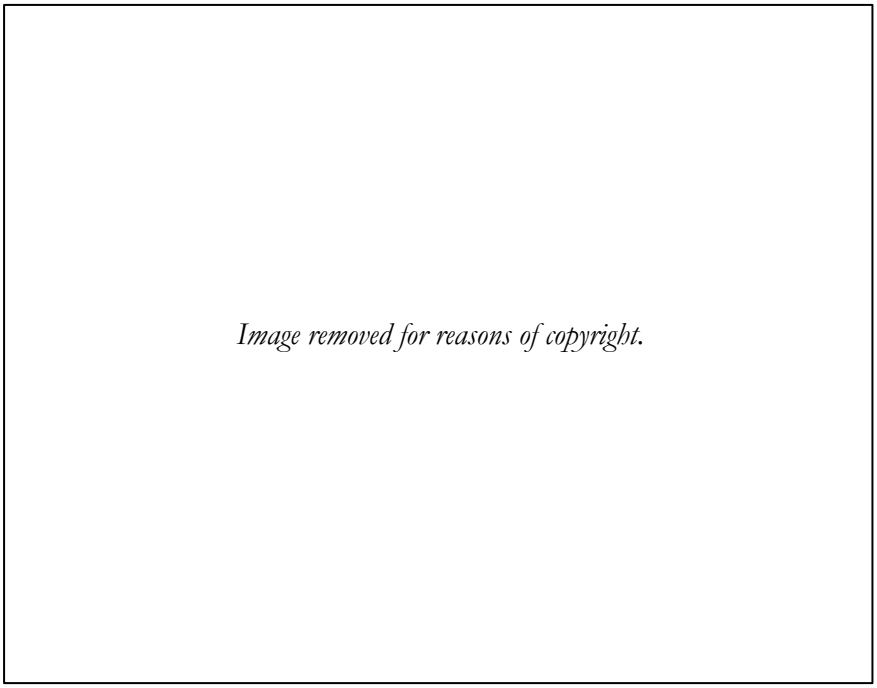

Fig. – 11 Ford Zephyr police car

The transformation of the police throughout this period, and the widening gap between the police and public, is apparent in other representations of the police. *The Sweeney* (1974-1978), a British television series which focused on two members from a branch of the Metropolitan Police, introduced elements of speed and violence to both its plot and its production. Dynamic filming techniques and fast editing replaced the slower, more documentary-like style of *Dixon of Dock Green*. The introduction of new type of police character, in the form of Jack Regan, was argued by some to be the first to 'seriously threaten the dominance of George Dixon as the stereotype of the British policeman' (Clarke, 1983, p. 47). Regan, it seemed, regarded rules and hierarchy as barriers to fighting crime, and contrasted greatly therefore to Dixon's more deferential nature. Some suggest that characters such as Regan were useful PR tools for the police, the romanticisation of on-screen violence creating a perception of crime that necessitated its use in return (Rolinson, 2011). What is for certain is that the transition from Dixon to Regan reflects a shift from a post-war consensus and the peak in police popularity (Reiner, 2003), to an era where opinions regarding the police and policing matters were less certain, and much more fraught.

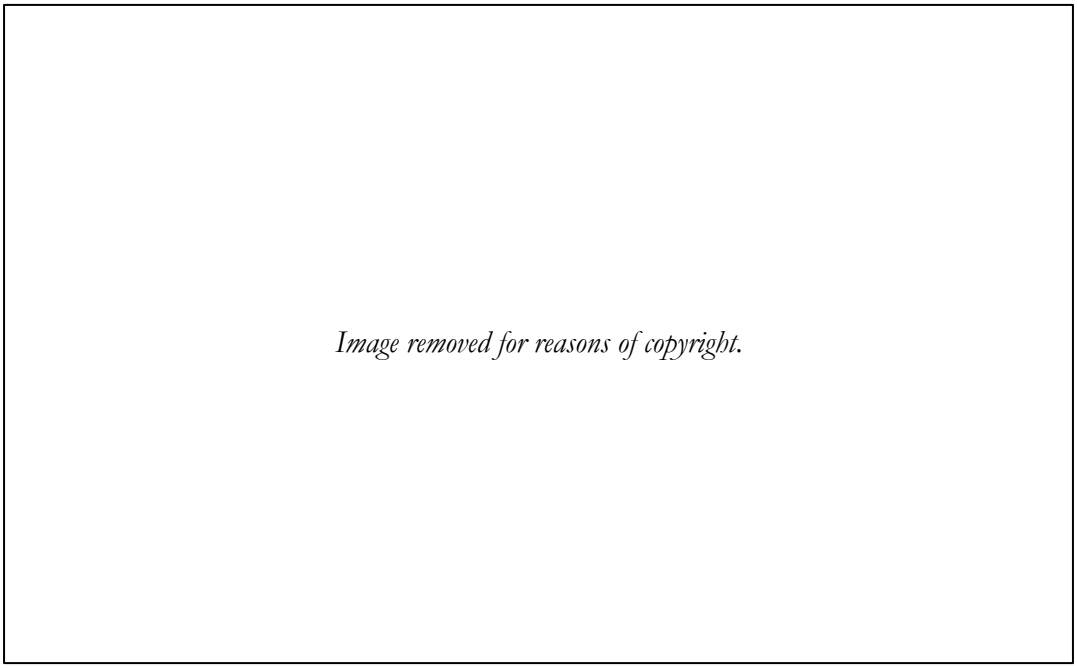

Fig. – 12 Public order policing during Brixton Riots (1981)

In both the media and on the streets a more forceful style of policing caused tensions and difficulties. Throughout the 1980s, a series of high-profile and well-publicised public order policing incidents would well and truly test the Peelian dictum, the police are the public; the public are the police. In 1981, the riots in Brixton, London (see Fig. – 12), and in other cities throughout the UK, marked a collapse in police and community relationships. Triggered by 'Operation Swamp' (a weeklong operation which involved over a hundred plain clothes officers stopping any individual who 'looked suspicious'), the Brixton riots resulted in levels of violence and injury unknown for decades. Images of upturned cars, burning buildings, and pitched battles between rioters and the police, were broadcast to screens throughout the nation. The Government's initial response was for tougher policing, though this approach would come under criticism (Reiner, 2010). In the media, the riots were framed in 'law-and-order' terms; the product of pure, inexplicable criminality.[13] Though comparatively much smaller, the emergence of two, more critical, counter narratives are notable within a media landscape, which, until this period, had traditionally been overwhelmingly supportive of the police. The first being that the uprising was an anti-police demonstration; a direct response to overly-oppressive police tactics. The second, that the riots, and the discontent which triggered them, was because of a failure of economic policy in the area. The Scarman report (1981), the result of an inquiry commissioned by the UK Government into the Brixton riots, rejected the dominant media response and incorporated elements of the latter two explanations. Although not categorically stating that the Metropolitan police force were institutionally racist, the report did suggest that there was significant discrimination towards Black people. Its recommendations were extensive; for instance, greater recruitment of ethnic minorities, the introduction of statutory liaison committees, lay visiting of/to police stations, the independent review of police complaints, and the tightening of regulations around racially motivated behaviour.

Scarman noted that measures were already underway to improve the police's capability of handling disorder and that within a few years all forces would have formed Police Support Units (PSU). A PSU consisted of a group of

[13] It is worth pointing out that the 2011 London riots were also discussed by government spokespeople in very similar terms.

approximately twenty officers, equipped with riot gear and trained specifically in public order policing led by two sergeants and an inspector. Specialist riot gear had initially become available in the 1970s, along with a new tactical options manual (a document outlining to public order policing tactics), and the formation of the National Reporting Centre (NRC). The NRC, which oversaw and coordinated a system of mutual aid (the sharing of staffing resources between separate constabularies), came under considerable criticism due to concerns that it handed over power concerning decisions on police deployment from the chief constables to the Home Secretary and the Government (Wellington, 1985). Whereas mutual aid resulted in officers operating far from the communities they usually policed. Both were a shift from the Peelian ideal of constables embedded within communities that they policed, and prompted fears that a more militaristic style of policing was being ushered in. They also played a significant role in the policing of the Miners' strikes, with new tactics from the tactical options manual, intended to "disperse and/or incapacitate' demonstrators and 'create fear" (Emsley, 1996, p. 184), being put into action at the 1984 Battle of Orgreave (See Fig. – 13).

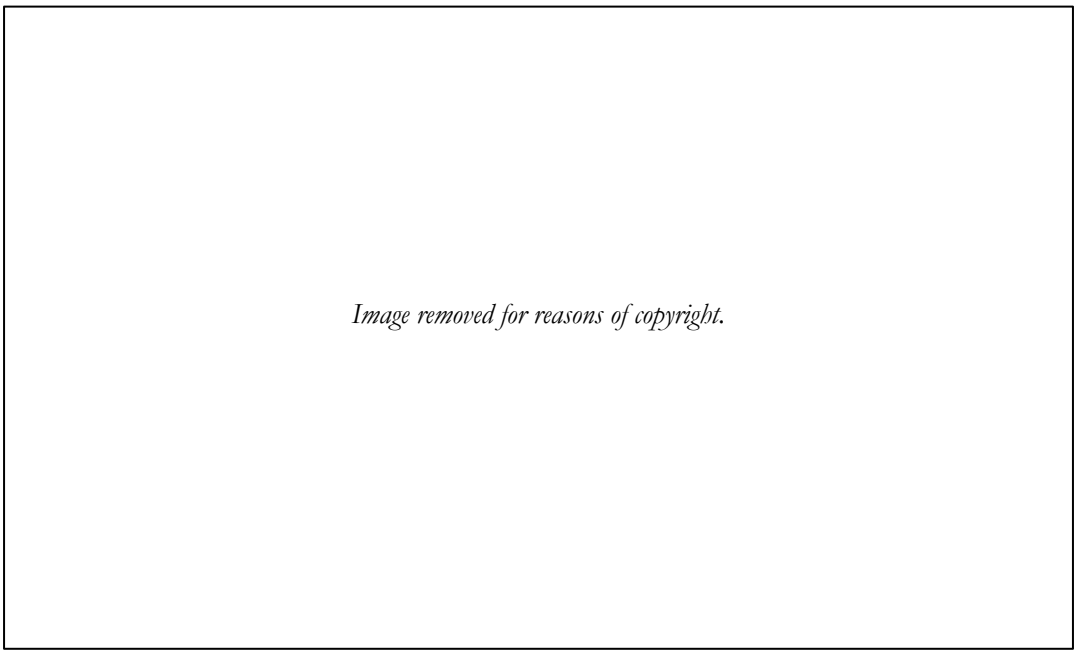

Fig. – 13 Mounted police at Battle of Orgreave (1984)

Images of the strikes, much like the inner-city riots earlier in the decade, showed violent scenes. Footage of clashes between the police and miners at Orgreave, one of the most significant media events of the entire strikes, was (and remains) a point of significant controversy. The sequence of events as broadcast by the BBC suggested that police had acted in self-defence, with the police charging at miners *after* missiles were thrown at them. The miners strongly disputed this, claiming instead that the police had intended to come down on them hard from the outset. ITN footage, broadcast later, showed a different a sequence of events. It showed police lines opening, and mounted police charging, unprovoked, into groups of miners. The ITN images also showed officers beating a man over the head, and miners fleeing *from,* rather than charging *towards* the police. The footage undermined and put into question the BBC account, revealing what appeared to be rather selective and out of sequence editing by the state broadcaster (Masterman, 2005). The BBCs coverage of the incident undoubtedly fuelled growing unease about

police conduct, their political impartiality, and critically in this instance, their relationship with the media.[14] The images of the Battle of Orgreave led some to believe that the police had been used to beat the miners, quite literally, into submission. The Thatcher government's desire to crush the unions was clear. Under her government, the police experienced favourable treatment, with improved funding for resources, and officers receiving a pay rise in comparison to the cuts experienced by other public sector employees (Emsley, 1996, p. 182). This militaristic turn, both in terms of equipment and tactics, and the apparent erosion of the police's impartiality, led to the depiction of the police as 'Maggie's boot boys', a considerable cost to police legitimacy (Waddington and Wright, 2008).

3.5 – Pluralised Perspectives: Towards a New Visibility

Various initiatives were used in order to try to regain some of the legitimacy that was being lost. 'Community Policing' (Tilley, 2008) and 'Neighbourhood Watch' (Laycock and Tilley, 1995) both attempted to actively engage the public in a dialogue, and can in many ways be regarded as an attempt to return to a pre-war style of policing. Another way to regain legitimacy was for the police to turn again to the media, to tell their side of the story, and to give an insight into the reality of policing. Roger Graef's fly-on-the-wall documentary series *Police* (1982), featuring the Thames Valley Police, attempted to give a more dynamic and realistic representation of police work, and echoes the access given for the production of *The Blue Lamp*.[15] The trend for authenticity in police entertainment continued, as was the access given by the police to television crews. The 1990s and 2000s saw a plethora of police reality television shows, for example, *Police Camera Action!* (1994-2010) and the emergence of the 'media ride-along', for example, *Street Crime UK* (2002-2005); *Real Crime* (2008-2011); *Road Wars* (2003-2010); *The Force* (2006-2020); *Coppers* (2010-2012). These kinds of shows have come under criticism, some suggesting that they are evidence of the media's 'over-reliance on the entertainment value of the law enforcement establishment' (Andersen, 1994). Whereas, the incorporation of real footage of real police work, albeit only selected encounters or scenes, leverages a semblance of the *real* and the *authentic* to provide a gripping and exciting product for viewers, and blurs even more the line between fact and fiction; leading to some calling them 'factions' (Leishman and Mason, 2003), a topic I will return to later in this thesis.

In addition to 'reality' television, the proliferation of closed-circuit television (CCTV) throughout the 1990s gave the public a new way to see real crime and think about its control. Although not strictly speaking producing police visibility per se, there are a number of parallels between the emergence of CCTV and BWCs, and resultingly CCTV warrants some discussion. Firstly, there was, at the time, a growing public perception and concern that cities were unsafe, and that initiatives such as Safer Cities, Crime Concern, and Neighbourhood Watch had not achieved their aims, and that 'there was a need for a new "magic bullet"'(Goold *et al.*, 2013, p. 980). Calls for CCTV were strengthened by the 1993 abduction of James Bulger (famously captured on CCTV), despite the fact that cameras neither preventing the child's death nor assisting in the apprehension of his killers (Davies, 1998). Secondly, an absence of existing legal infrastructure and a lack of appetite for rigorous debate regarding privacy issues meant that there was what some have referred to as 'a climate [...] of supportive indifference' (Goold *et al.*, 2013, p. 988) regarding the growth in CCTV. Thirdly, New Labour's 'tough on crime, tough on the causes of crime' approach

[14] The BBC have always claimed that any perceived impartiality was due to error (*BBC News*, 2014).
[15] The handheld camera techniques and personal stories found in Graef's documentary went go on to inspire *The Bill* (1984 - 2010) (a long running British police drama). *The Bill's* pseudo-documentary style was an attempt to depict an 'authentic' portrait of policing from the policing point of view.

(Blair, 1995), their flagship Crime and Disorder Act (1998), which aimed to put 'policing back in local communities' (New Statesman, 2015), placed statutory requirements on greater partnering between local authorities and the police to tackle crime (Reiner, 2010). CCTV not only offered an effective way for local authorities and the police to partner but was attractive to a new government keen to look progressive, especially where technology was concerned. Throughout the 1990s, 'the presence of cameras on high-streets [slowly became] an accepted part of the landscape' (Goold *et al.*, 2013, p. 983). For the police, CCTV began to change the nature of the streets, drawing an end to their near monopoly of surveillance. From this point onwards, whenever their actions were called into question, questions would be raised about the availability of CCTV footage.

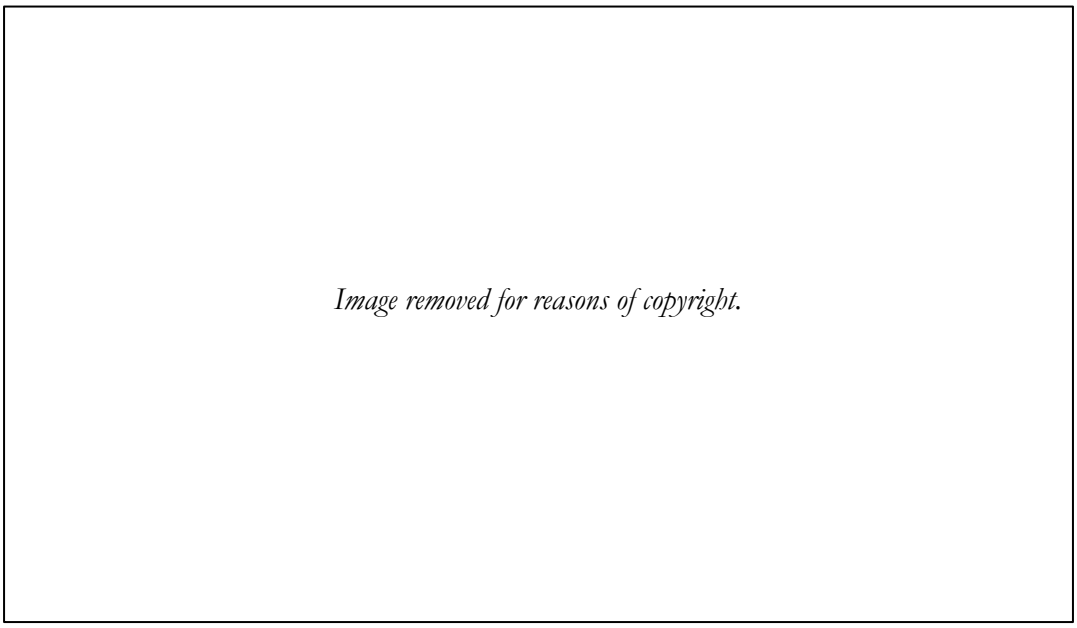

Fig. – 14 Racially motivated beating of Rodney King by the LAPD (1991)

Though taking place earlier in the decade, and on American soil, the racially motivated beating of Rodney King by the Los Angeles Police Department (LAPD), in 1991, is another salient example of the erosion of the police's control on their visibility. Captured by George Holliday, a member of the public, on a home video camera, the footage (see Fig. – 14) depicting extreme police brutality, was broadcast to televisions around the world. It would raise awareness about previously hidden elements police violence. Like CCTV mentioned previously, the incident is a further example of the erosion of the police's ability to control their visibility and police the facts. Recalling Thompson's points discussed in the previous chapter, the incident highlights the power that mediated images have in holding power to account. Examples such as Rodney King also make clear that radical forms of transparency (that reveal what the police do not want to be seen) can powerfully damage carefully constructed appearances within the media. The murder of Stephen Lawrence in London in 1993, and the subsequent MacPherson report (1999), which now *was* explicit in describing the Metropolitan Police as being institutionally racist, meant that links between Rodney King and Stephen Lawrence would inevitably be drawn (Evans and Lewis, 2013).[16] The publication of the MacPherson report coincided closely with the Patten report into the conduct of the police service in Northern

[16] The incident would also highlight that the lessons of the Scarman report 18 years previous had not been learnt.

Ireland (1999), which recommended that 'immediate and substantial investment be made in a research programme to find an acceptable, effective and less potentially lethal alternative to [plastic baton rounds]' (Patten, 1999, p. 54) routinely used in Northern Ireland at the time. The findings and recommendations of both reports formed the basis for *Policing a New Century* (Home Office, 2001), a white paper on policing and subsequent police reform legislation (Police Reform Act 2002). The white paper advocated a more 'entrepreneurial' approach from police chiefs and suggested that 'technology and information technology could transform policing' (Home Office, 2001, p. 3). As with other periods in policing history, challenges are met with technological solutions and innovations. The white paper is, in many respects, indicative of Barry's (2001) claim mentioned in the previous chapter; that we live in a technological society, characterised by technology being both a source of, and solution to, societal problems. In the years that followed its publication and advice, TASER's and BWCs would be introduced to police forces in England and Wales. TASERs in 2003, initially to special units only, though more widely in 2008, and in 2005, the first trials of BWCs.

The deaths of Jean Charles de Menezes in 2005, newspaper seller, Ian Tomlinson, during the G20 protests in 2008, and Mark Duggan in 2011, all at the hands of the police, would intensify calls for the roll out of BWCs. Although each unique, these incidents bring into stark relief the power of the police to use (at times deadly) force and their accountability when doing so. In relation to police visibility, the death of Ian Tomlinson is particularly noteworthy due to the role that video footage played in achieving justice. An initial statement given to the media by the police said that Tomlinson had died of a heart attack, failing to mention that Tomlinson had even come into contact with the police at all (Lyall, 2009). Video footage would later trigger one of the most extensive Independent Police Complaints Commission (IPCC) investigations in history, in which twelve-hundred hours of footage from over two hundred sources were collected. The investigation would eventually show that Tomlinson had in fact been pushed by a police officer, and a subsequent post-mortem suggested that this had resulted in his death. The incident raised serious questions about the IPCC, the policing of the protests by the Met., and again, the relationship between the police and the media. It also represents another shift in the nature of police visibility, characterised by a pluralisation of perspectives and increasing uncertainty about the 'official' narratives put forward by the police. It also ushered in an era where video evidence would become an expectation rather than a novelty, and reignite discussions about the police's relationship with both the public and the media (Lyall, 2009). Goldsmith, drawing on Thompson, as discussed in the previous chapter, highlights the death of Ian Tomlinson as an early sign of 'policing's new visibility' (2010). Comments from the then Metropolitan Police Commissioner, Sir Paul Stephenson, reflect this idea of a new visibility and the significance of video footage for revealing misconduct: 'as technology changes there are different ways and many more opportunities for people to be caught behaving badly if they choose to behave badly' (United Kingdom, 2009, p. 5), and that this has the potential to damage public confidence.

The austerity policies of the Conservative-Liberal Democrat coalition put police forces under intense strain, with government funding cut by 2 percent between 2010–11 and 2014–15 (Disney and Simpson, 2017). It is difficult to give a clear picture of both the extent and impact of cuts, across the forty-three different constabularies, however, it is safe to say that the impacts were not equally felt.[17] As a way of reducing costs, and as per the recommendations

[17] Forces with budgets composed of a greater proportion of central Government money, for example, were more exposed to the impacts of cuts than those with budgets composed of a mixture of local and central Government funding. The 2010-11 budgets of

of the Winsor report (Great Britain and Parliament, 2012), an independent review into the remuneration and conditions of police officer and staff, recruitment and pay were frozen for two years. Few police officers were made redundant. This was due to a number of factors, principally the expense of making serving officers redundant, but also the strength of the Police Federation (a powerful policing lobby), and widespread public support for maintaining a uniformed police presence. Nonetheless, as a result of officers retiring or leaving the job, officer numbers in England and Wales dropped by over 20,000 between Mach 2010 and March 2018 (Schraer, 2019). Another, more politically acceptable, way of reducing staffing budgets (also mentioned in Winsor's report) was by making civilian staff redundancies. Through the framing of different aspects of police work as either 'front line' or 'back office', stringent cuts were made to staffing budgets, these were 'back office' or 'support roles'. Whilst perhaps being more palatable to discuss cuts to 'non front line' police staff, the essential, often specialised, work, which these staff conducted would need to be picked up by others. This meant, somewhat perversely, that so called 'front line' staff were drawn away from their normal duties.

One of the suggested means of mitigating the effects of austerity cuts was through better use of technology (Brogden and Ellison, 2012). As previous examples in this chapter have shown, technology, time and again, has been suggested as a way to solve issues facing policing, not least staffing shortages. As noted in the introduction to the thesis, in the wake of cuts, and in a bid to streamline routine administrative tasks, officers have been provided with a range of technological devices such as laptops and 'digital notebooks' (small, internet-enabled tablets). These are intended to boost efficiency by reducing the need for officers to return to the station and, according to Andy Battle, the then Assistant Chief Constable of West Yorkshire Police, would result in increased 'visibility, responsiveness and presence on the streets' (*The Yorkshire Post*, 2014). Adopting digital technologies was not only pitched as a means of mitigating the effects of cuts, and reduced staffing budgets, but part of a more widespread view that the police needed to adopt new tools to keep pace with changes in crime, brought about by the increasing significance of technology, specifically the internet. This adoption of such technologies, and the partnerships with business, are seen by some as a shift to a 'platform policing' model (Gates, 2019; Wilson, 2019a), with policing agencies being reimagined as 'lithe, flexible, porous, and in a state of continuous experiment' (Wilson, 2019a, p. 69).[18] Recalling the crisis of legitimacy facing policing around this time, and some early indications of supposedly positive effects of BWCs, in both speeding up complaints procedures and perceived levels of transparency (James and Southern, 2007), it is not hard to see that, from an organisational perspective at least, BWCs posed an attractive proposition. BWCs are often described as a device which allows the public to see the *reality* of what the police do. A technology, which at the time had quite wide-ranging support, and seemingly helps the police to achieve two key strategic aims: improving efficiency and increasing accountability. In the years that have followed BWCs have become something of a flagship police technology, reflecting – or so it is argued – the ability of the police to both 'keep up' with changing demands and expectations in relation to transparency, accountability, and legitimacy whilst at the same time offering significant efficiency gains and cost savings.

Surrey and Merseyside, when compared side by side, evidence this point nicely with Surrey's budget being composed of just over 50 percent from central Government compared with 80 percent for Merseyside (Brogden and Ellison, 2012). The fact that areas of particular economic hardship were both less able to raise money via council tax, and suffered more of the associated social issues, meant that the effects of the cuts were compounded for police forces in such areas.

[18] It is worth pointing out that platform policing's conceptualisation of police agencies as producers of value with the data they produce is especially true in relation to Axon and Axon Cloud Services.

3.6 – Conclusion

This chapter has charted a history of the police in England and Wales with a particular focus on technology. It has shown the significant role various technologies have played in mediating police visibility and the consequences this has had for both police accountability and police legitimacy. The chapter began by outlining what the police are. The policing role is extensive and it deals with 'every kind of emergency' (Bittner, 2005, p. 150). Nonetheless, the police can be defined by their authority to use force (and other powers not available to ordinary citizens) on behalf of the state, in order to achieve their ends (Brodeur, 2010). The authority to use force (which is, at times, deadly) means that the police accountability is vital. This chapter has shown that visibility is, and has always been, vitally important to a consensual model of policing, and Reiner even argues that policing 'has always been as much a matter of image as of substance' (Reiner, 1994, p. 11).

In reaction to these ideas, three periods of change have been discussed. The first section discussed the emergence of a formalised, 'modern' police in London, in 1829, and the various design decisions that were considered. The use of blue rather than red for officers' uniforms is a visible and symbolic separation between them and the army, whereas the decision that it should be worn at all times was intended to prevent suspicion of spying. In an era dominated by face-to-face interaction, the uniform was a primary technology by which police visibility was managed, and ideas of transparency and legitimacy achieved. The period was also characterised by rapid population growth and social and technological developments. The police callbox was given as an early example of the police turning to technology to respond to the changing nature of crime and increasing demands. The second section discussed both the changes to police visibility that occurred in the post-war period, and the erosion of a consensus about policing. Throughout the post-war era, despite attempts to manage the police image (often by granting access to external agencies as was the case in the film *The Blue Lamp*), the police struggled to maintain the legitimacy they once had. Developments in policing, for instance the unit beat system, didn't help. Here, much like before, technology was used in an attempt to boost efficiency and mitigate staffing issues. In the case of the unit beat system, this had unintended consequences and contributed to the estrangement of the police from the communities that they served. The third and final section highlighted the increasing pluralisation of police visibility throughout the 1990s, and into the 2000s and 2010s. The growth in 'reality' police television programmes showed attempts by the police to tell 'their side of the story' and show an 'authentic' side to policing. Simultaneous to this, CCTV, and the growth in consumer imaging technologies (first the home video camera and later the smartphone) would show a different, and sometimes competing, version of reality. The beating of Rodney King in the United States, and later, the killing of Ian Tomlinson, highlight policing's 'new visibility' (Goldsmith, 2010). The new (New) Labour government would champion an entrepreneurial approach to policing and encourage use of technology. TASER was first introduced in 2003, and in 2005 the first trials of BWCs were under way. The effects of austerity following the financial crisis in 2008 were stark and the police were asked to do more with less. This coincided with more high-profile instances where police conduct and legitimacy were questioned. Again, technology was seen as a way of mitigating some of the issues faced and this period saw rapid growth in the use of both TASER, and critically, BWCs. This chapter has shown that although linked, transparency and police visibility have an unsymmetrical relationship. As history shows, claims that a technology (in this instance a BWC) can make police more accountable, purely because they make the police visible, should be treated with caution.

Anecdote: What to Wear

I used to work part-time in a men's clothes shop. I helped people choose clothes for all sorts of occasions: TV shows, bar mitzvahs, job interviews, dates, christenings, funerals, you name it. I enjoyed the process, considering on the expected conditions, the weather, and things like the level of formality, or practical things: "I want something smart that I can also cycle in". Over the years, customers would come back and tell me that the date went well, or that they got the job, so I'd like to think I'm good at choosing clothes for people.

Some of the hardest outfits I've ever had to choose were for when I did my fieldwork with the police. This wasn't vanity (or at least not consciously), it wasn't a fashion show, I wasn't trying to impress. But the outfits that I'd usually wear, what I'm wearing now for instance, just felt wrong. That's not that I'd say I have a particularly 'out there' fashion sense, but in a room full of people with numbers on their shoulders, wearing either high-vis or black, anything else is going to be different. On the street the police stand out, but in the police station the tables were turned. Actually, picking the clothes wasn't the difficult bit. I knew that I'd be on my feet a lot, and the weather at any time in the UK can be unpredictable, so I chose comfortable trainers and my warmest, waterproof jacket. Aside from this I chose mainly plain dark things – I didn't want to stand out. The reason it was hard was because the process of deciding what to wear required reflecting about the reality of being in 'the field'. A wardrobe contains many different versions of a person. Mine contains the person who likes cycling, the designer and criminologist, the PhD student, and the person who helped choose shirts for dates and weddings (who as a result, has too many shirts himself). Now it had to contain the person who would be observing the police as they search for drugs, knuckle dusters, and an unexplainable number of mobile phones. The reason that constructing this outfit was hard was because I was deconstructing other versions of myself and beginning to construct and position myself as a researcher.

Chapter Four:
Methodologies for Multiple BWCs

4.1 – Introduction

In Chapter Two, I drew links between design, criminology, and STS, and discussed why paying attention to objects' role(s) in the social is important. I argued that STS, and more specifically ANT, offered a way of paying empirical attention to objects in use, and for accounting for the role of nonhuman actors in the production of the social (Latour, 2005). This kind of approach offers designers a way for thinking about their role in producing the social (Ward and Wilkie, 2008; Wilkie, 2020), and criminologists, a way to account for the role that objects play in crime and its control (Brown, 2006; Savoie *et al.*, 2017). I also outlined some of the criticisms of ANT (Haraway, 1994; Harman, 2009; Law, 1999; Mol and Law, 1994). As a way of addressing some of these censures, I discussed the work of Annemarie Mol, who says that 'objects come into being' (2002, p. 5) as a result of how they are enacted or performed. Aside from meaning that objects are multiple (i.e., as the enactments multiply so do objects) this attention to enactment means that it is possible to 'ethnographically explore' (Mol, 2002, p. ix) an object of study, in Mol's case, atherosclerosis, and in mine, a police BWC.

This chapter discusses some of the practical implications of these ideas for this interdisciplinary project. It considers both how we might begin to ethnographically explore police BWCs, and some of the other ways in which we might engage with this object of study. In order to do this, it will discuss how some of the empirical, theoretical, and analytical sensibilities associated with STS, and specifically ANT, relate to, and might be allied with, approaches from criminology and design. The chapter is structured as follows. First, I note some of the specific qualities and characteristics of design research, suggesting that it has distinct epistemic qualities. I then discuss where this project sits in relation to the three disciplines. This involves a discussion of some of the shared objectives, common theoretical frames, and methodological intersections that exist between them, and highlights calls for a 'broadening' or 'remaking' of methodological approaches (Law, 2004). Three sections then follow. These outline the three broad epistemic approaches that are used in this research: making, observing, and speculating. The matter of the research site (or rather sites) is then discussed, drawing on George Marcus' notion of multi-sited research (1995). Here, particular attention is paid to some of the practicalities of how observational research was conducted with police. Finally, before the key conclusions are drawn, I discuss the ethical considerations that have been considered in this research project.

4.2.1 – Design Knowledge

Previously I have drawn on Herbert Simon's definition of design as 'devising courses of action aimed at changing existing situations into preferred ones' (1998, p. 111). Following this, we can think of design as being about 'deciding on and then realising preferred futures' (Tonkinwise, 2015a, p. 7), and the production of 'new worlds' (Ward and Wilkie, 2008). I also noted that some describe design as a 'mode of inquiry into the very conditions of the contemporary' (DiSalvo, 2018, p. 72), and that there is a 'designerly' way of knowing (Cross, 2006). In this section, I discuss some of the distinct qualities of design practice, and draw on Bill Gaver's analysis of the strengths of 'research through design' (2012), and Nigel Cross' initial discussion of designerly ways of knowing (1982), to consider some of the characteristics that make design knowledge unique.

Both Cross and Gaver note that design is often concerned with problems that are 'ill-defined, ill-structured, or 'wicked' (Rittel and Webber, 1973, as cited in Cross, 2006, p. 7). Wicked problems are problems that are 'complex enough that no correct solutions exist a priori and for which formulating the situation is integral to addressing it'

(Gaver, 2012, p. 940). As a result, designers must 'define, re-define, and change the problem-as-is in the light of the solution that emerges from their minds and hands' (Cross, 1982, p. 228). Designers are able to spot and decide on problems, and then balance a host of issues and variables as they engage materially with them. Consequently, any 'solutions' that designers work towards are not out there waiting to be found but are actively produced by the designer through the process of their designing.[1] In this way, according to Cross, design differs from science which investigates extant forms (how things are), because it initiates new ones (how things might be). Because of the way it both formulates and responds to problems through productive methods, the knowledge and outcomes produced by designers are different, in many respects, from the kinds of 'facts' that other disciplines might work towards.[2] Matt Ward talks of design outcomes as 'materialised thought' (2015), whereas Gaver (who also highlights design's generative quality) talks of design outcomes as '[embodying] the myriad choices made by their designers' and existing with 'a definiteness and level of detail that would be difficult or impossible to attain in a written (or diagrammatic) account' (Gaver, 2012, p. 944).[3] In summary, design as a practice involves assessing and addressing complex problems and attending to these through a range of (often highly creative and experimental) methods and techniques. It is concerned with assessing the world as it is now, and working towards new versions of the world as it might be.

4.2.2 – Design & Social Research

How do these unique qualities of design relate to social research? Deborah Lupton highlights the growing interest within the social sciences regarding the use of methods and processes from design, and makes the case for a 'design sociology' (2018). She argues that methods from design are relevant to sociological research that 'seeks to understand people's engagements with objects, systems and services, better engage publics and other stakeholders, work towards social change and identify and intervene in futures' (2018, p. 1). She also notes that design researchers 'have begun to include sociocultural perspectives in their work' (2018, p. 1) noting amongst others, ethnography and STS. Lupton sketches out other similarities. In terms of aims, for example, 'in attempting to address power differentials and social inequality both critical, and participatory design share some of the same interests and methodological imperatives as sociology' (2018, p. 4). She also notes that design researchers are increasingly attentive to the 'sociotechnical contexts of design as a practice and the sociocultural dimensions of the objects and systems that emerge from and are enacted through these practices' (2018, p. 3). In relation to this final point, the introduction to Marres, Guggenheim, and Wilkie's (2018) book *Inventing the Social* is particularly insightful. Drawing similar observations to Lupton, the authors note that, '[d]esigners, architects and artists are now reframing their practices as novel forms of social research', and that, 'the projects conjoining sociology and design and more generally of rethinking epistemic and aesthetic engagement with social life are increasingly widespread' (2018, p. 17).[4] Unlike Lupton, however, who is arguing for design methods to be introduced to sociological scholarship, the

[1] I place solutions in quotations marks here to highlight that there is a growing movement within design that is less concerned with 'solving' problems through the production of new artefacts and things, but instead, by 'making space' or raising awareness (Lindström and Ståhl, 2020), I will return to this below.
[2] It is also worth noting that these outcomes act on the world, making new realities possible.
[3] Whilst some design artefacts and outcomes certainly exist with a level of detail which other modes perhaps cannot, I am somewhat more sceptical of this blanket statement, and instead, would rather suggest that they exist in a way that is *different* and thus incomparable with other accounts, indeed this difference should be celebrated.
[4] This project is, of course, evidence of this claim.

authors are more concerned with charting the opportunities and implications posed by a much deeper kind of interdisciplinary or 'inventive' praxis. Two assumptions are central to their book. The first assumption being 'the well-established view in the social sciences that '[s]ociety is not given but done' (2018, p. 19). In other words, 'social life is not something that simply exists out there but is *made*' (2018, p. 19 emphasis in original). An idea, it is worth highlighting, that also underpins cultural criminology (Ferrell *et al.*, 2008). The second, that nonhumans (a BWC for instance) have a role in how social life is performed. These assumptions about society and sociality have a number of implications for those seeking to research it. Not least, the 'troubling circumstance: [that] devices that ostensibly serve to report on social life in actual fact influence it' (Marres *et al.*, 2018, p. 21). The recognition that research is both performed, and is always already an intervention, is central to the work of John Law, who they cite as a reference. An STS scholar and someone who was instrumental in the development of ANT, Law, similarly takes reality to be something that is brought into being; it is 'a *consequence* of method' (2004, p. 38 emphasis in original). Following this important shift, we might no longer think of research methods as a way to 'discover and depict realities', but instead think about them as part of the 'enactment of those realities' (2004, p. 45). Resultingly, Law advocates 'a way of thinking about method that is broader, looser, more generous, and in certain respects quite different to that of many of the conventional understandings' (2004, p. 4).

Considering the above, the introduction of creative and design approaches to social research can be understood as being not merely about methodological novelty, but instead being based on a belief that research means 'actively engaging with social settings and actors' (Marres *et al.*, 2018, p. 25). Indeed, if, as Law suggests, research is a way of making realities (2004), then the 'engagement with the creative competencies of other disciplines' (Marres *et al.*, 2018, p. 22) offers exciting new ways for how research might be done and for the forms knowledge might take.[5] The ideas discussed in both this, and the previous section, theoretically inform the following three sections, which discuss three main epistemic approaches used in this project: *Making*, *Observing*, and *Speculating*.[6]

4.3 – Making

This section considers the practice of making as a way of producing knowledge. Previously, when examining the politics of visibility, I noted Haraway's concept of 'situated knowledges' (1988). Law, discussing Haraway's paper, says that one of the things (amongst many) it does is, 'investigate the *optics* of knowing' (2000, p. 4 emphasis added). Law highlights Haraway's insistence on the positionality of vision, and her caution against the 'god trick of seeing everything from nowhere' (Haraway, 1988, p. 581). According to Haraway, there is no universal objectivity, instead, vision (and therefore knowledge) is always situated and partial. This section, although drawing on this idea of situated knowledge, questions this emphasis on vision. Instead, it asks if there is a different and potentially unique way of knowing, to be arrived at through the active, practical, engagement of a research object through the practice of making. Mol, in a book on the topic of eating (2021), also addresses vision or 'seeing'. She notes that seeing is, of course, one of the senses we perceive and therefore *know* the world by. Unsurprisingly, considering that the subject matter of the book is eating, Mol introduces other senses, hearing, and touch for instance, and of course taste and smell.[7] Traditional Western philosophical thought, she suggests, has tended to favour the 'rational' senses. Seeing

[5] Considering the role of design in the production of new realities, Law's points are particularity exciting for the discipline.
[6] The order that these are presented is not hierarchical but instead reflects their position within the thesis.
[7] Mol draws on both Maurice Merleau-Ponty and Caroline Korsmeyer here. For the sake of brevity, I have skimmed over some of

and hearing, for instance, allow us to perceive (and therefore know) the world 'out there' and have been associated with intellect. Whereas taste, smell, and touch have been more associated with the 'sensuous body' (Mol, 2021, p. 53). This hierarchy of the senses, she notes, reflects a division between the subject and the object of study. Through a description of eating, during which the object of her study (food) is incorporated into the subject in various ways, Mol turns this division on its head.[8] She asks, is seeing *always* a way of perceiving the world which offers knowledge? And what other ways are there of perceiving and knowing about the world? Mol notes that tasting and smelling can be done perceptively; we can compare two dishes for example, and this is certainly knowledge. Conversely at times, what we *see* moves us. Mol points out that sometimes 'perceiving the world and sensing the self are not played out against each other, but coincide' (2021, p. 59), and that resultingly, 'well-established distinctions between the world-out-there and the self-in-here get blurred' (2021, p. 60).

What has eating got to do with making? And how do Mol's observations (or perhaps feelings) about eating help us understand making as an embodied and material practice, or a way of knowing or engaging with a BWC? The task of the maker, Tim Ingold writes, 'is to bring [...] pieces into sympathetic engagement with one another' (2013, p. 69). Ingold draws on Lars Spuybroek who likens designers to gardeners and chefs. A good chef, Spuybroek says, 'not only sees the state of things but senses where they are going' (2011, p. 240). Like Mol, he recognises that cooking requires more than just sight. Of course, in order to 'sense' where a dish is going, we cannot only bring ingredients together, but smell, taste, and touch them. Cooks and designers bring things together using various senses to do so. A designer will probably not use taste, but they certainly do sense where things are going, and they will use a range of senses and sensibilities to do so. In relation to this, Ingold says that makers 'inhabit a realm *in among* the pieces rather than *above and beyond* them, adjusting each in relation to the others, and serving as a kind of go-between' (2013, p. 69 emphasis in original). The maker as a go-between, *in amongst* material, rather than above and beyond it. This embodied kind of making certainly sounds in keeping with Haraway's notion of situated knowledges, and with the coinciding of sense and perception, and the blurring of the object and subject that Mol discusses. Indeed, conceiving of making as a sensorial practice *in amongst* material offers an exciting model for making as a way of knowing.

Making can be thought of as a practice that erodes the boundaries between the subject and the object of study; a way of knowing that is 'neither objective nor subjective, but transformative' (Mol, 2021, p. 55). It involves bringing things together, being in *amongst* material, and in many respects foregrounds the agency of nonhuman actors; after all 'the parts form and develop as they *participate* in the process' (Spuybroek, 2011, p. 240 emphasis added), making it relevant for STS scholars. Describing 'making things to make sense of things', Kat Jungnickel proposes making as a 'means of *doing* research' (2018, p. 495 emphasis in original), and suggests the idea of an 'ethnography of making' (2018, p. 493). She highlights how even a 'mundane practice' can reveal 'an emotional and physical entanglement with the research' (2018, p. 498). She also suggests that making offers a way of engaging with black-boxed technologies, 'interrupting' the smoothness of artifacts that 'become easy to overlook, under-examine, and accept without question' (Jungnickel 2018, p. 497). In relation to design, Ward, in a similar vein, notes that designers 'make

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the details. Merleau-Ponty, for instance, does not include taste and smell as senses of perception. Whereas Korsmeyer, although recognising them as such, still attaches a degree of hierarchy associating them with 'the sensuous' body. For more see (Mol, 2021, pp. 50–53).

[8] Mol discusses a number of ways in which food is incorporated, for instance, via the nostrils and the mouth, but also in the stomach and in the intestines, with the help of bacteria.

things, to make sense of the world' (2015, p. 229), whereas Gaver says that 'the practice of making is [seen as] a route to discovery' (2012, p. 942). While Schuman notes that prototyping 'represents a strategy for 'uncovering' user needs' (2002, p. 166), a device that allows designers to *make sense* of users in situ. Having said that, Jungnickel suggests that 'design research tends to hold onto a fetish of the (designed) object' (2020, p. 49), and, perhaps too frequently, making is seen as a means to an end rather than an epistemic activity in its own right. Nonetheless, making is undoubtedly a designerly practice, and making things to make sense of things is something that designers frequently do.

This section has discussed how making offers a way of '*doing* research' (Jungnickel, 2018, p. 495). Making, which involves the maker interacting with material on multiple registers, has been discussed as a site of knowledge production, one which both produces novel forms of knowledge outcome – the role(s) these outcomes might play will be discussed in due course – but critically, other forms of knowledge in the process. It has been discussed as central to design, and as relevant to STS, because of how it might be used to engage with the black box of technology and takes into account the agency of nonhuman actors. The ideas discussed in this section are developed further in Chapter Five.

4.4 – Observation

This section discusses the second of the three epistemic approaches, which, for reasons that will be discussed below, I have termed 'observing'. As will be discussed this approach is informed by both ethnography and ANT. Work described as being 'ethnographic' is common in design, social research, and STS, however, some raise concerns that too frequently design research is described as ethnographic without clear understanding of ethnography's methodological or practical underpinnings (Dourish, 2006; Ingold, 2014). Following a brief introduction to ethnography, and a discussion of these concerns, this section considers the role that ethnographic methods have played in this research and suggests a shift towards thinking of 'praxiography' (Mol, 2002).

Ethnography, derives from the Greek words 'ethnos' and 'graphein' which mean people and writing respectively (Wolcott, 1999). It is, in very simple terms, a piece of writing about a people or culture (Van Maanen, 2011), and is characterised by a dedication to 'thick descriptions' (Geertz, 1973). Ethnographies, because they 'take care to observe and describe all events, behaviours and artefacts of the social setting' (Gobo and Marciniak, 2016, p. 105) are seen as a productive research method in a range of disciplines. Ethnography is common in policing research (Holdaway, 1983; Punch, 1989; Westmarland, 2001; Marks, 2004; Van Maanen, 2011; Fassin, 2017b; Souhami, 2019), where it has been described as 'a good way to capture the vocational aspects of policing' (Rieken, 2013, p. 94), and because it is seen as a way of getting a relatively unfiltered view into policing (Reiner, 2000). It is also common in study of technologies (Suchman *et al.*, 2002), and there is also a tradition of ethnography within design (Anderson, 1994; Ackerman, 2000; Button, 2000; Nova, 2014).[9]

[9] Nova gives a history of design's relationship with ethnography (2014). In brief, he notes that after the Second World War there was a desire to include the 'human perspective' (2014, p. 32), initially through an anthropometric approach. Following the emergence of the cognitive sciences in the 1960s, this focus began including a more psychological approach to understand users, something, he notes, would later be instrumental in the development of both Human-Computer Interaction (HCI) as a discipline and the use of term 'User-Centred design'. In the 1990s, 'ethnographers were brought into HCI research labs in order to provide more open methods for the development of interactive computer systems' (Nova, 2014, p. 34) out of a dissatisfaction with existing methods, such as laboratory-based usability studies. Around the same time, in Scandinavia, Participatory Design was also using observation as a tool to better understand participants, along with greater involvement of users in the design process (Ehn, 2008),

Ward, who notes that 'ethnography has been widely adopted by [design] practitioners and educators as 'as the *de rigueur* method for shedding light on social realities' (2015, p. 237), but warns that 'when applied without appropriate care, attention, and imagination, it can lead to instrumental and predictable results' (2015, p. 237). Paul Dourish makes similar observations, arguing that there is some confusion about ethnography in design practice, meaning that it is frequently regarded rather reductively in purely methodological and instrumental ways (2006). This confusion, he argues, 'marginalises or obscures the theoretical and analytic components of ethnographic analysis' (2006, p. 3), and tends to place ethnography at the service of design. Drawing on Anderson (1994), he highlights some characteristics of ethnography that are often overlooked, principally that 'ethnography must be seen primarily as a form of reportage' (2006, p. 3). Ethnographies, Dourish reminds us, 'are texts, not veridical representations of the world' (2006, p. 3) and are, instead, reflexive in nature, they are 'not only about the culture under study, but equally, implicitly or explicitly, about the cultural perspective from which it is written' (2006, p. 4). Following Dourish's points, to refer to ethnography purely in methodological terms, especially at the service of another discipline, is to miss some of ethnographies most important traits.

How is this project informed by ethnography? How is it possible to 'ethnographically explore' (Mol, 2002) a BWC, produce an 'ethnography of making' (Jungnickel, 2018), and how does ethnography relate to ANTs empirical stance? To answer these questions, I return to Mol's description of her ethnographic/praxiographic practice in *The Body Multiple* (2002) drawing some connections between this, and some of the sensibilities of ANT which she says precedes it (1999). Recalling claims made in Chapter Two, that one of ANTs central analytic moves is conceiving of the social as composed of a heterogeneous array of humans and nonhumans (Law, 2004), and that, in order to understand the social we must to pay empirical attention and 'follow the actors themselves' (2005, p. 12), we see that ANT is in many ways aligned with ethnography (it is about paying empirical attention to the social). That said, this requires a something of a shift in how we think of ethnography. Mol notes that her ethnographic strategy relies on '*everything* and everyone that is active while [the disease] is being practiced' (2002, p. 33 emphasis added). Mol writes not only about people, but things too. This, what she terms a 'praxiographic' approach, retains the empirical attention but extends this to a diverse range of actors. It suggests that objects of study emerge through enactment. Because it is about performances, not fixed networks, it 'comes with and therefore *after* ANT' (Mol, 1999, p. 87).[10] Mol's post-ANT, or praxiographic approach, allows for nonhuman actors to be considered in how the social and culture are produced, and make it possible to examine a technology in its multiple performances.

This section discussed some of the strengths of ethnographic and observational methods, highlighting their relevance to criminology, design, STS, and policing scholarship. It highlighted concerns that too frequently the label 'ethnographic' is misapplied and that work often fails to grasp some of ethnography's key epistemic underpinnings using it instrumentally. To explain how this project has used observation I introduced Mol's praxiographic approach. This retains empirical attention to social situations but shifts the attention towards performances made up of both humans and nonhumans. This project is informed by these points, and the choice to use the term observation recognises that the knowledge outputs produced will not always take written form. The ideas discussed

[10] Mol's approach is resultingly sometimes referred to as a 'post-ANT' (Gad and Bruun Jensen, 2010).

in this section relate most closely with Chapter Six, which draws on observations based on time spent with the police, the specifics of which I will return to in due course.

4.5 – Speculating

This section discusses the role that speculation plays in this research. As will be shown, speculation is inherent to design but is also increasingly being employed in social research. The section begins by discussing speculation in relation to design, both in a broad sense, and then particularly speculative design, a sub-discipline of design, which often uses objects to prompt what Mike Michael refers to as 'inventive problem making' (2012b, p. 172). Following this, the role of speculation in social research, and the notion of 'participatory speculation' (Ward, 2015) will be discussed. This involves sketching out ways of how material devices can be used to work with research participants to begin to 'get inside' (Jungnickel, 2020) technologies, such as the BWC, and prompt speculation.

Following Simon's (1998) definition of design we can argue that all design is speculative. Ward notes, for instance, that designers 'never design for today' and that they are 'constantly imagining (or making assumptions about) the conditions and possibilities of the future world we hope to inhabit' (2020).[11] Michael also recognises that design is concerned with making things 'that will shape the future' (2012b, p. 171), and highlights Speculative design as an area of design which, because it is 'less interested in the making of objects that fulfil specific functions or meet particular needs or ends' (2012b, p. 172), it is able to retain or suspend design's speculative qualities. He notes elsewhere that speculative design can 'trigger "overspilling" and the enablement of unforeseen participant actions' (2012c, p. 537). Speculative design is closely associated with the work of Tony Dunne and Fiona Raby, who describe it as 'a means of [challenging] narrow assumptions, preconceptions and givens about the role products play in everyday life' (Dunne and Raby, no date).[12] According to Revell *et al.*, speculative design is most often used 'to challenge and disrupt the hegemonic techno-utopia embodied by today's technological objects' (2018, p. 283). Dunne and Raby's has generally been produced to be shown in museums and exhibitions, often with an accompanying publication, and has undoubtedly been incredibly influential. That said, the way in which the works are communicated, Michael says, 'serves to delimit the range of possible meanings that they might carry' (2012b, p. 172).[13] Moreover, such designs are often founded on a particular critique which the designers are trying to articulate and means that they are unlikely to 'prompt 'inventive problem making'' (2012b, p. 172). Michael highlights Gaver's work, which, although similar to the work of Dunne and Raby, in that it is not produced with industry or the market in mind, differs, 'because the designs partly emerge from an initial engagement with the public' (2012b, p. 172). Here we see similarities between the work produced by Gaver, and some of the points made by Law, and Marres *et al.*, noted above, in relation to inventive and interventionist approaches to social research. Indeed, Gaver's use of 'probes' is discussed as a potential method which might be fruitful in social research (Lury and Wakeford, 2012).

[11] The BWC is, of course, evidence of this. The designers at TASER imagined a future and then set about producing it.
[12] Michael differentiates *critical design* (which he associates more with the work of Dunne and Raby) from *speculative design* (associated more with Gaver). The two are closely linked and are often frequently referred to collectively as *critical and speculative design* (CSD). In recent years, especially after the publication of Dunne and Raby's book *Speculative Everything* (2013), many would associate Dunne and Raby's work more with *speculative design* than *Critical Design*. As such, I prefer to use the two prefixes 'critical or 'speculative' (if they are required at all) as descriptors, rather than to define disciplinary space.
[13] There is much debate, within the design community, regarding both designing for exhibitions, and criticising CSD as being the preserve of a predominantly White, Western elite (see Tonkinwise, 2015). Many of these criticisms are valid, but equally, that is not to say that *all* CSD, or its aims, should be considered void as a result.

To explain inventive problem making, Michael uses Gaver's probes as an example. In simple terms, probes (originally conceived as cultural probes) consist of a small package of 'provocative items' (a disposable camera for instance), accompanied with various open-ended tasks, such as "photograph something beautiful or something you see from your kitchen window" (Boehner *et al.*, 2012, p. 186).[14] These are then distributed to volunteers, who live with the probes and then return them to the designers, who use the responses in their design process. Michael notes that probes are thus involved in a speculative design process 'that is less concerned with developing instrumental or utilitarian devices than objects that enable playfulness and exploration, and that precipitate new thinking' (2012b, p. 173). Fundamentally, probes are about engagement. They prompt 'inventive problem making' (Michael, 2012c) because they excite the creativity of the participants, and reframe the issues at hand. Probes are then much aligned with some of the points made by Law, described above, especially in that they bring new realities into being. Critically too, *both* designer and participant have agency in which realities are brought into being, is foregrounded. Ward also discusses the role of materiality for engaging with people and describes how design can be used as a vehicle 'participatory speculation' (2015, p. 242). Critically, he notes that this brings with it new ethical implications for designers, and that the 'skills and sensitivities needed to guide people through complex networks of opportunity and possibility are only just beginning to be understood' (Ward, 2015, p. 242), ideas I will return to in later chapters.

In terms of speculation's role in social research, Guggenheim *et al.*, ask how they can 'create speculators and make the world speculate' (2017, p. 145). Theirs is a position which seeks to erode the notion held in 'both philosophy and speculative design [...] that speculation remains with the expert' (2017, p. 145). They similarly highlight the value of objects, which they term 'speculative machines', as ways of encouraging speculation. Jungnickel, although not defining her work as speculative, also discusses the use of objects or research devices (2020). She refers to 'transmissions', which she says can be 'understood as the tactical combination of *making* (how theory, methods, and data give shape to research) and *communicating* (how we show, share, and entangle others in it') (2020, p. 1 emphasis in original). Transmissions, she says, 'disturb the division of research, analysis, and dissemination, sometimes catastrophically so, to actively engage people in the production of research facts' (2020, p. 60), and therefore function in similar (although not identical) ways to probes. As will be discussed later in the thesis, I have used objects to invite speculation about issues related to the BWC, and to engage in inventive problem making. Drawing on Barry's definition of technology I have chosen to refer to these objects as 'research technologies'.

This section discussed how objects can be used to prompt in speculation and engage with participants in the process of 'inventive problem making' (2012b). The section drew connections between speculative design, with specific attention paid to 'design probes', and theoretical discussions about interventionist research approaches that engage actively with the social (Marres *et al.*, 2018, p. 25) and the making of new realities (Law, 2004). The ideas disussed above informed Chapter Seven, which describes how I used a range of research technologies (outcomes of the making described above activated in specific ways) to engernder specific conversations about the BWC, and engage in a process of 'participartory speculation' (Ward, 2015).

[14] It is worth noting that the original Cultural Probes project, was developed back in 1999 by both Dunne and Gaver, alongside co-collaborator Elena Pacenti, further highlighting the blurred boundaries between critical and speculative design.

4.6 – Sites & Fields

One of the central arguments of this chapter is that research methods bring new realities into being (Law, 2004). The previous three sections have discussed various epistemic methods (making, observing, and speculating) that this project uses. These have taken place in different sites and at different times during the project. Making, for instance, on the whole, took place in my university office before my visits to the police, whereas the speculation with research technologies took place during some of later visits but after some initial observation. The development and writing of the observations (the 'graphy' of ethnography of praxiography) took place in the weeks and months directly after the research visits. This section discusses how the various activities and sites of research are connected in this project, and their relationship with a particular geographical fieldsite.

George Marcus makes the case for research that is 'multi-sited' (1995, 1998), and says that multi-sited projects define an object of study that cannot be accounted for through one site of investigation. Instead, they follow 'unexpected trajectories in tracing a cultural formation across and within multiple sites of activity' (1995, p. 96). Multi-sited research defines 'objects of study through several different modes or techniques' (1995, p. 106), one of which being 'follow the thing' (1995, p. 106). It is easy to draw connections between 'follow the thing' and Latour's invocation to 'follow the actors themselves' (2005); Marcus discusses 'quite literally following connections, associations, and putative relationships' (1995, p. 97). Marcus recognises that numerous interdisciplinary areas use a multi-sited approach, and highlights that 'follow the thing' technique as prominent and influential in STS. Discussing the idea of multi-sited research, Christine Hine suggests that, if following Law, research is a way of making realities, then a multi-sited approach gives researchers both agency in how they are constructed, and a way of attending to loosely bounded and multiple technologies through the construction of a research object across multiple sites (Hine, 2007).[15] Considering the various methods described in this chapter, the idea that research can take place across multiple sites is useful for this project. On the one hand, it suggests that different kinds of scholarly activity taking place across various sites might be combined to define and make sense of an object of study such as the police BWC. On the other and bearing in mind Hine's point about loosely bounded and multiple technologies, it allows for research to consider the fact that BWCs don't *only* work during police-public encounters and that there are many places, and ways, in which a technology works. A BWC might be used to record a crime scene, or be used as a device to prevent violence against officers on the 'beat', it might be used as a tool for entertainment in the station, or as a tool for doing police 'image work' in public media (Mawby, 2001). With this idea of muti-sited research in mind it is worth briefly clarifying what the multiple sites of research in this project are, how they relate to each other, and to differentiate between them and the idea of a geographic fieldsite. To be clear, as discussed above and as reflected in the following three chapters, there are three distinct *sites* of research in this project. These sites all relate, in one way or another, to one specific geographical fieldsite (a place where observation was conducted with police officers), which I will now discuss.

This project involved conducting observational research with police officers. This took place in a town I will pseudonymously refer to as 'Fritton'.[16] During the autumn of 2019, nine visits were made, totalling approximately

[15] Hine refers specifically to de Laet and Mol's (2000) description of the Bush Pump, as discussed in Chapter One.
[16] For confidentiality reasons I have decided not to name the specific force or location where this research was conducted. More detail regarding this and other ethical considerations can be found below.

110 hours of observation. Fritton was chosen because it involves a mix of rural and urban policing.[17] The majority of this time was spent with response officers (first responders attending crimes in progress and situations requiring urgent attention), however, time was also spent with police community support officers. Observations took place across a varied shift pattern, including early and late shifts. Data was collected in fieldnotes which were written up at the end of each shift, often from shorthand notes made on my mobile phone.[18] Fritton is home to some of the most deprived neighbourhoods in the United Kingdom and has a higher-than-average number of people suffering from mental health issues and drug and alcohol addiction. The effects of austerity cuts, as discussed in Chapter Three, have compounded these issues and have arguably made the task of the police in Fritton harder (Bell, 2015).

Access for the research was formally negotiated with senior officers in the force prior to the visits. Once 'in the field' with officers, I was conscious that although initial access had been granted by senior officers, this would not guarantee meaningful (or indeed ethical) participation, something noted by others (Norris, 1993; Marks, 2004; Rowe, 2007).[19] Norris points out that given the hierarchical nature of the police, there is something of a grey area between a suggestion and an order, when given by a superior (1993).[20] I kept this in mind when conducting my observations. I was aware that in some ways my presence was something of an imposition, so I made sure the officers were aware that they could refuse to crew with me, and I asked the sergeant in charge of allocating shifts to make sure they agreed to my being present.[21] In the context of the police, an academic researcher can be described as an 'outside outsider' (Brown, 1996), someone who lacks both organisational and cultural capital. Although the station where I was conducting research had recently had another academic researcher visit, I knew that it was unlikely they had much experience of design research. I was conscious (and a little nervous) that I might not be taken seriously with this creative, and seemingly 'less scientific', project, and that as a result might be seen as an even-more-outside-outsider. To my knowledge, few, if any designers, have conducted this kind of research with police officers in England and Wales. During my initial conversations with senior officers, I had got the impression that the word 'design' led to a degree of confusion. This position as a unique kind of researcher leads to a range of unique implications, some grey areas, but also some opportunities in terms of how the aims of the research are articulated, (ideas I will return to below and in later chapters). After some explanation of the project, my interests, (often using the research technologies discussed previously), and after I had made clear I wasn't necessarily for or against BWCs but was interested in how the cameras worked, the officers were forthcoming with suggestions.[22]

The research visits allowed me to not only observe day-to-day police work more but, also, critically, the ways in

[17] It is worth noting that despite this, the vast majority of the time was spent in the town centre and its outskirts.
[18] As the subject of this research is a camera it might seem odd that a camera wasn't used during fieldwork. That said, if we accept that technologies change situations, the addition of a researcher's camera would constitute a significant and unwanted complication. For this reason, I decided to try to record data in the most low-impact way I could, hence the decision to use my mobile phone for note making only.
[19] The fact that my project had been given the go-ahead by the Chief Constable was frequently raised, often as a joke, but with the insinuation that I was conducting covert research on their behalf.
[20] Rowe points out that even though he gave officers the opportunity to decline to participate, 'in practice it was unlikely that any would do so, and in fact none did.' (2007, p. 43).
[21] Whilst, to my knowledge, no officers refused to crew with me, some were more interested and engaged with the research than others.
[22] These initial conversations were some of the most insightful and inspiring conversations I have had about police-use of technologies, the ideas discussed often making *Minority Report* (*Minority Report*, 2002) seem unimaginative.

which officers use their BWCs.[23] I was, as one officer put it, "shadowing the camera", not them, echoing, in many respects, Marcus' instruction to 'follow the thing', or Latour's instruction to follow the actor. The visits also gave me the opportunity to talk with officers about both BWCs, and other issues relating to policing.[24] Aside from conducting observational research, the visits were also an opportunity to show officers the outcomes of my making, and to use them as research technologies to engage in 'inventive problem making' (2012b, p. 172) and participatory speculation (Ward, 2015). All of the various sites of research in this project relate to Fritton in some way: making was done with Fritton and the officers in mind, whereas observational research, and the use of the research technologies, physically took place in Fritton.

4.7 – Research Ethics

BWCs and the police who use them pose ethical questions. The BWC, as discussed previously, is often framed as a device which can improve transparency, accountability, and legitimacy, and thus achieve a more equitable and perhaps ethical kind of policing research. As has been noted, policing in England and Wales is informed by the Peelian principles, which outline an ethical approach built on the notion of consent. Research has ethical dimensions too. This section outlines the considerations relating to the research ethics taken into account during this research project. It begins by outlining some of the ethical obligations involved in conducting fieldwork with the police, highlighting relevant ethical guidelines and protocols, which were used to safeguard the research participants. I then briefly discuss how risks to members of the public that we came into contact with, and risks to myself, were managed, before finally discussing the ethical considerations involved in conducting multi-sited, practice-based research in this context.[25]

Conducting observational research with the police brings with it with a number of significant ethical, professional, and legal risks to research participants. This research followed relevant protocols, namely the UK Research Integrity Office's (UKRIO) and the British Society of Criminology's (BSC) codes of ethics. In addition, a statement of ethics and a risk assessment were produced for the project in advance of research visits. These two documents had input from both the police force in which the research took place, and Goldsmiths' legal team, and they can be found as an appendix to this thesis. Many police forces, including the one in which this research took place, have a health and safety protocol for observers. This was used as a framework during this research in order to minimise the potential health and safety risks the officers I was observing, and myself. This protocol, which I spoke through with all the officers I observed, stipulated that I should remain behind the supervising officer when arriving at incidents, and that under no circumstances should I physically get involved.[26] Aside from minimising any health and safety risks that might arise as a result of my presence, another of the main obligations I had to officers I was with was to ensure that their professional integrity was maintained (in many respects this responsibility also extends

[23] It is worth noting that during initial conversations with senior police officers, observations were encouraged. They were, however, couched in rather different terms: "come along and see us, Tom. I'll set you up with some of my guys and you can chat to them and see how they use 'em, that's the best way to get a proper idea."
[24] It is worth highlighting that the visits deeply informed my perceptions and thinking on policing, the issues (and risks) that officers face, and importantly, how BWCs function in a way I had not anticipated.
[25] Strictly speaking, the mitigations put in place to reduce the potential risks to the researcher fall more within health and safety, rather than ethics. For practical reasons and because they relate closely to some of the other discussion, I have included them here.
[26] Interestingly in conversations with several officers we noted that *some* circumstances I probably would have got involved: "I can't imagine you'd just stand and watch someone get their head kicked in", to which I agreed that indeed, in this instance, I would feel compelled to act.

to the organisation at large). Compared with other forms of data collection, for instance, interviews of questionnaires, periods of observation bring the risk that participants might be more likely to reveal information or opinions that might have negative impacts, either for them or their colleagues. Moreover, there is also the risk that the researcher might be a direct witness to malpractice and/or illegal activity. I kept this in mind during the visit and decided that if the conversation appeared to be moving in a direction that I felt uncomfortable with, or which had the potential to jeopardise their careers, I would either leave the conversation or in instances that this was not possible, change the subject. I also made sure that I was aware of the types of incidents (such as incidents to do with terrorism or child abuse) that would legally require me to make a colleague or another authority aware of. Confidentiality was central to how these risks were managed. All participants were made aware that names, places, and identifiable details would be removed, and that all data would be stored securely and in accordance with college guidelines.

As noted in the previous section, I made sure that officers consented to taking part in the research. I asked that the sergeant in charge of organising who I was to be paired with gained agreement prior to pairing, and then, when we met, introduced the aims of my research and reiterated that they didn't have to agree to take part (no officers refused to participate in the project at this stage). As noted above, being a 'design' researcher in a setting such as this leads both to a range of unique implications, and to opportunities, in regard to how the aims of the project are discussed and articulated. One of the main hurdles to overcome were assumptions and preconceptions regarding what a designer is, what they do, and where their interests or attention might lie, similar ideas have been discussed elsewhere (Gaver, 2018). It is hard to say for certain how much any confusion, or what I perceived to be a conception of design, and design artefacts, as being politically neutral, influenced the officer's willingness to engage with me, and meant that, in comparison to other 'outsiders', say for example, a journalist or a documentary film maker, I was regarded comparatively as less of a threat to professional integrity. As noted above, I tried to unpack and explain as much as I could, the purposes of the research, my interests, and the potential outcomes of the study, after which most officers seemed supportive and excited that they were being consulted. Nonetheless, the potential for this kind of confusion raises important ethical questions in relation informed participation in the project, and whether I was, in fact, leveraging a perceived neutrality of design, whilst perhaps making claims in my research to the contrary. Moreover, a participant might well give consent for their opinions or data to be included in a design outcome or design research, this requires them to understand what form this might take. I believe that I was able to negotiate these issues through both an ongoing conversation with participants, and by using some of the design artefacts as tools to actively explain the project and its aims. These outcomes acted as examples of what design could be and the kind of questions it could ask. Using design artefacts in this way thus becomes a useful way of fulfilling the ethical responsibility of informing research participants about the research, in terms which are meaningful to them, and is, to my mind, a key strength of this kind of research.

Observing police officers on duty inevitably means also observing suspects and victims of crime. Given the nature of the situations taking place, it would have been neither feasible nor appropriate to get signed consent from these individuals. Where possible, at each of the incidents that we arrived at, either I, or one of the officers I was paired with, introduced my presence and the nature of my research. In private settings, such as people's houses, permission was requested for me to enter (it is worth noting that at no time was this refused, perhaps as a result the authoritative position of the police in society). At no point was private or personal information relating to of any of

those observed, recorded. The unpredictable nature of police work also means there is the potential that the researcher might sustain physical injury whilst observing officers. There is also the potential for emotional harm or distress. A researcher might be witness to a particularly gruesome or distressing incident, or because they are privy to, or gain knowledge about, illegal activity, malpractice, or so called 'guilty knowledge' (Fleetwood and Potter, 2017).[27] This was something I kept in mind and discussed with the officers I was paired with. I made sure that I remained behind the officers and, had I felt uncomfortable, would have ended the research visit/session, and sought additional support. Because of the protocols and frameworks that I put in place, I believe I was able to navigate and manage my responsibilities to research participants, members of the public, and myself, as observations were conducted.

As noted above, this project has taken a multi-sited approach. This raises, or perhaps more accurately, throws into sharp relief, a number of ethical responsibilities. Making things, especially when made for, or to create an imagined moment in, the field, complicates ideas about when a designer conducting research enters the fieldsite. Moreover the 'data' which they leave with might potentially take various (material) forms. From an ethical perspective, it extends a designer's responsibility to research participants across a number of temporal time frames. In short, it means that there is a duty of care when designing for the field, a duty of care when in the field, and a duty of care when designing after the field. This was something I tried to keep in mind, both in terms of the design of the research technologies and also how research data was used and managed. Design, in many respects, has a less clear-cut set of ethical frameworks, and resultingly the intersection with social research has proved useful in helping me consider and manage ethical responsibilities in this project. As noted earlier, and as I will return to later in the thesis, the ethical implications and 'skills and sensitivities needed to guide people through complex networks of opportunity and possibility', when conducting design projects and research of this kind, are still 'only just beginning to be understood' (Ward, 2015, p. 242).

4.8 – Conclusion

This chapter discussed how a range different methodological approaches, from both design and social research, can be used make sense of, and understand, a technology, such as the BWC. It began by discussing some of the unique epistemic qualities of design, noting that design is adept at dealing with complex problems, that design knowledge emerges from situated practice (Gaver, 2012), and that it produces outcomes and artefacts that act on the world, producing new realities (Ward, 2015). Based on this, and drawing on literatures from STS that suggest that the social world is 'not given but done' (Marres *et al.*, 2018, p. 19), and that realities are 'a *consequence* of method' (Law, 2004, p. 38 emphasis in original), I discussed the relevance of design methods to social research. This informed the following three sections, which discussed the key epistemic activities used in this research: making, observing, and speculating. Making was discussed as a transformative practice (Mol, 2021), one that blurs the boundaries the object of study and the researcher. Making was also promoted as a unique way of producing both knowledge and knowledge objects; a way of making sense of the world through material engagement (Jungnickel, 2018; Ward, 2015). The second section discussed observation. This involved a brief discussion of ethnography and its strengths – namely an empirical

[27] Although I had prepared myself as best I could for the possibly seeing distressing instances, for example, a road traffic accident, or a sudden death, I had not anticipated compound effect of attending incidents which were low level, from a policing perspective, but that involved people who were struggling and needed more support.

attention to behaviours and the social settings in which events take place (Gobo and Marciniak, 2016), and a commitment to thick descriptions (Geertz, 1973) – and its connections to design, criminology, policing research, and STS. Here I highlighted Dourish's claim that ethnography is often viewed by designers in an overly instrumental way, and that resultingly, ethnography's interpretive and reflexive qualities are lost (2006). With this in mind, noting the connections between ANT and ethnography, and drawing on Mol's post-ANT or 'praxiographic' approach (1999), I sketched out the role that observation has played in this research. The third section discussed speculation. After a discussion of the role of speculation in design, and with attention paid to speculative design specifically, I discussed how objects might be used to engage in 'inventive problem making' (Michael, 2012b) and engender in 'participatory speculation' (Ward, 2015). This section also discussed the relevance of speculation for social research. Following this, I introduced Marcus' notion of multi-sited research (1995), noting how it has informed this project. A multi-sited approach is not only able to account for the loosely bounded and multiple realities of a technology (such as the BWC), but also foregrounds the researcher's role in the construction of a research object. I outlined the various sites in this research project and discussed their relationship to a specific geographic fieldsite, Fritton, where the observational research with police officers was conducted. Finally, I discussed how this project has managed ethical responsibilities, outlining relevant protocols that were put in place. This section also discussed some of the complexities that relate to multi-sited design-led research of this kind, ideas that I return to in the following three chapters.

Anecdote: Making

The police officer I spoke to when first explaining the project was confused, and perhaps even disappointed, when I said I wasn't going to be designing the next new BWC. I nervously explained that instead, what I was interested in was how the 'old ones' – the ones they already had – worked. I explained how cameras had changed the way the public see the police and what they do, but also that they probably did more than we thought. I said that, although the existing research into BWCs was good, it was, well, quite limited. Also, that it was generally only really interested in answering a yes or a no question: do the cameras work or not? I, on the other hand, was less concerned with this question. I was interested in the many *different* ways in which they might work. I said I wasn't against BWCs (this seemed to go down well), and that I accepted that they were here to stay but as a result of this, surely, it was worth finding out as much as we can about them. My rambling went on for what seemed like an eternity (I was nervous in case they would say no to my request to conduct the fieldwork). There was pause, then officer agreed with what I had said. There was another pause, and then the officer said something like "so you're interested in a BWC as a piece design?", "Yes!", I said. I explained how I was interested in making things to ask questions. The conversation was flowing now and at some point, I said something like, "it's basically using design to know more about design". We then talked about how much this tiny product, the BWC, which you could mount to your chest, had seemed to have changed policing in such a short time. They understood me now. Our two worlds, policing and design, had collided.

Chapter Five:
Making in Amongst the Material of BWCs

5.1 – Introduction

This chapter describes how making, an activity common in design practice, was used in this research to 'get inside the BWC' in order to generate ideas, define territories of interest, and materialise thought (Ward, 2015). The chapter is structured as follows. First, it discusses what 'the material' is in an interdisciplinary project such as this, and why it inspires practical interrogation. Here a common theme is discussed, namely that the things (images, concepts, sketches, ideas, literature, etc.) generated in the course of this research were incompatible with more orthodox academic modes of investigation and communication, and that resultingly, they deserved a different kind of attention. The bulk of the chapter is then composed of three sections: *Scripting BWCs*, *Situating BWCs*, and *Soldering BWCs*. These describe three distinct, but nonetheless interlinked, activities and consider the knowledge that each produced. In these sections two modes of writing are used. The first, more informal in style, describes the act of making, as an embodied experience 'in amongst material' (Ingold, 2013) and connects with Jungnickel's notion of an ethnography of making (2018). The second is more analytic and zooms out to unpack and examine what this making practice, and the knowledge produced, means from a more theoretical perspective, both in relation to the literature and to the broader research project. In addition to producing knowledge, the making activities described in this chapter also produced physical things. These will also be discussed. Finally, the chapter concludes with a summary of the various activities, drawing some connections between them and making some generalisable comments, and include a brief description of the role the outcomes have played in other aspects of the research.

5.2 – Incompatible Material

Making, as discussed in the previous chapter, is a unique way of producing knowledge. A practice that erodes the boundaries between the subject and the object of study, it can be thought of as a way of knowing that is 'neither objective nor subjective, but transformative' (Mol, 2021, p. 55). Making involves bringing things together, being amongst material (Ingold, 2013), and is therefore a way of working that foregrounds agency of nonhuman actors. With this in mind, what is meant when talking about 'material' in an interdisciplinary project such as this? Moreover, what inspired or prompted each of the making activities I am about to discuss (after all the aims of this project were to investigate a technology, not design a specific product)? And critically, what did making do that other ways of working could not?

In this project, making has taken place alongside, and punctuated, more 'orthodox' academic research and writing. As will be described more below, this research has involved, amongst other things, reviewing the existing knowledge base on BWCs, researching the history of police visibility, the relationship between the police and technology, and getting to grips with a range of theoretical and philosophical literature. At times the questions, ideas, images, concepts, etc., generated in the process of the research, felt incompatible, somehow. A collection of images, or an idea hastily scrawled in the margin of a report, didn't fit with the section I was writing but at the same time felt too important to simply jettison. Often, this feeling of incompatibility stemmed from the fact that I couldn't (at that moment at least) fully articulate why the idea or thing was important. At other times the incompatibility stemmed from the fact that the various worlds or ontologies of both the BWC and policing didn't seem quite to fit together. Whilst being connected, a quantitative study into BWC use means something quite different and exists in a space quite unconnected to a video of an arrest on Twitter, or a police uniform and its meaning. As will be described below, material piled up, and making offered both a way of attending to it, and,

recalling Jungnickel (2018), a way of making sense of it.

5.3 – Scripting BWCs: Fictioning Implications of Technology

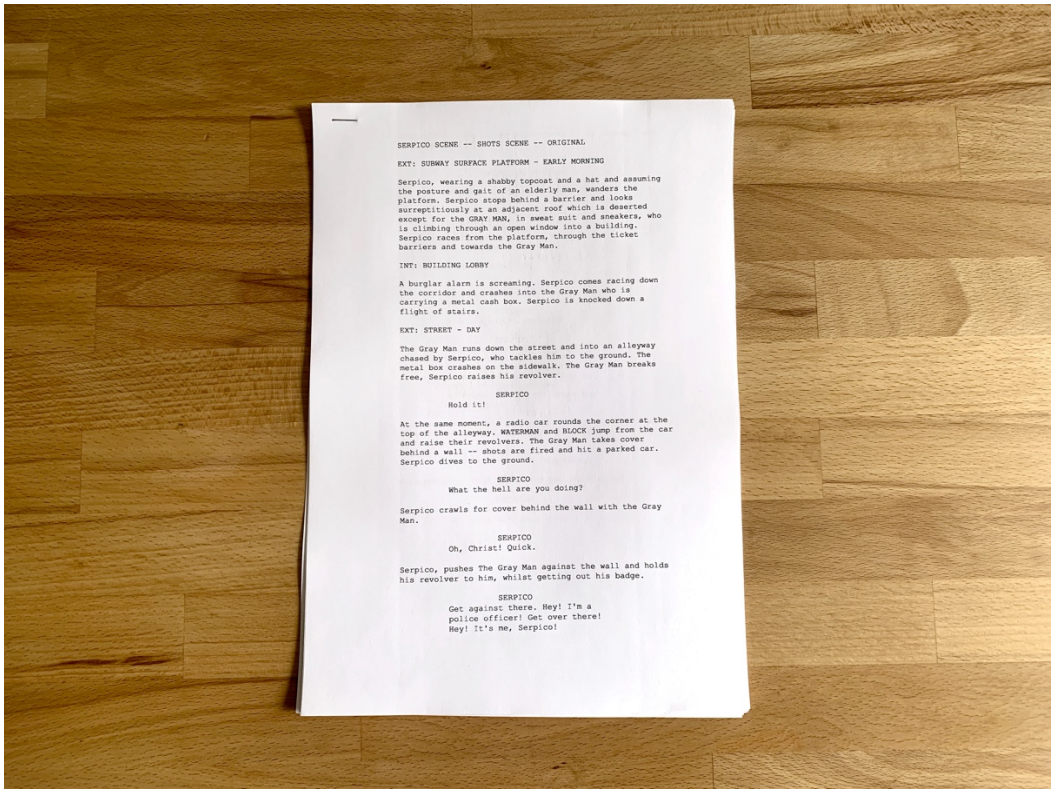
This section describes how a making activity, that I will refer to as 'scripting', was used to interrogate, understand, and get amongst, a body of literature about the effects of BWCs (largely composed of quantitative studies), and the official guidance for their use. The section will also discuss the outcomes of this making: a series of modified, semi-speculative film and television scripts.

It was early days in the PhD, and I was trying to get to grips with 'the knowledge base'; what was already known about BWCs? I'd read lots of the studies before, but I was trying to be a good PhD student. I was being systematic and had decided to re-read them, alongside the UK Government's and the College of Policing's guidance for BWC use. After a couple of days of wading through long, and if I'm honest, quite dry, papers on the effects of BWCs in policing in various places around the world, I was feeling tired. My eyes hurt, my head ached, and I was getting fidgety. I had a stack of printed out articles on my desk all covered in notes and annotations, a (metaphorically) bulging folder of PDFs on my laptop, and page upon page of notes in my notebook. I felt good about my diligence, and some of the findings in the articles *were* really interesting. I knew more than ever that the project was important. But if I were being truly honest, I was a bit bored. Tables of numbers aren't really my thing. And I couldn't help but feel that statistical models, and things called 'Poisson distributions' – something I'd had to Google – could only tell me so much about a BWC.

Around the same time as all this reading, I was beginning to have phone conversations with police officers about some fieldwork visits I was due to conduct. The way that the officers talked about their work, and the reasons why BWCs were "so important", seemed to me to be much more exciting and complex than could possibly be summed up in a statistic. To counter the boredom of the reading, as another, albeit seemingly less 'scholarly' kind of research, I had been watching and downloading clips of BWC footage and citizen recordings of police encounters on the internet. This footage, and the way in which officers spoke about BWCs, seemed somehow at odds with the studies. Although the studies were the 'gold standard', they were dry and didn't seem to capture many of the reasons the officers said the technology was important to them. The officers talked about situations that were action packed, dangerous, and, ultimately, nuanced. Similarly, the footage got my heart rate up and made me squirm in my chair. It compelled me to make judgments about what was right and wrong. Both the footage and the officers' accounts presented policing as something that could be done well or be done badly, more of a craft than a science. Excitement and nuance seemed to be missing in the studies. I'd reached my saturation point with statistics. Enough. It was probably a bit early, but I packed up my belongings, got on my bike, and headed home. That evening, still feeling guilty about what had felt like procrastination so early in the project, I decided to watch *Serpico* (1973). After all, it's a film all about police malpractice, so connected in some ways to the research (and it's a classic). After a couple of scenes of the film, half watching, half thinking about the articles still stacked up on my desk, I started to wonder: what would Frank Serpico make of a BWC? More to the point, what would his corrupt colleagues think of it? As I watched the next few scenes, I decided to try a thought experiment, I decided to give Frank Serpico a BWC. For the rest of the film, I imagined the implications of the BWC in the fiction. *Serpico* became a site of research.

The above describes a feeling of frustration and a moment of inspiration. The frustration was complex. On the one

hand it was frustration with myself as I struggled to be inspired by the quantitative criminological studies. On the other, and more critically, there was the frustration with what I felt to be a mismatch between the studies I was reading, the officers' descriptions of their work and the footage of policing that I was watching. The various worlds (quantitative, experienced, mediated) of both policing and of the BWC, seemed to be to be in tension. The studies had certainly generated ideas; scribbled notes and thoughts in the margins of the page, but I couldn't work out what to do with them. They didn't seem to fit with the other material I was looking at, and as a designer I wanted colour, texture, stories to work with. The frustration quickly gave way. A moment of inspiration, and a question that somehow collapsed these seemingly incompatible worlds. The ideas and notes had been transformed; they became material to begin to design with.



SERPICO SCENE -- SHOTS SCENE -- ORIGINAL

EXT: SUBWAY SURFACE PLATFORM - EARLY MORNING

Serpico, wearing a shabby topcoat and a hat and assuming the posture and gait of an elderly man, wanders the platform. Serpico stops behind a barrier and looks surreptitiously at an adjacent roof which is deserted except for the GRAY MAN, in sweat suit and sneakers, who is climbing through an open window into a building. Serpico races from the platform, through the ticket barriers and towards the Gray Man.

INT: BUILDING LOBBY

A burglar alarm is screaming. Serpico comes racing down the corridor and crashes into the Gray Man who is carrying a metal cash box. Serpico is knocked down a flight of stairs.

EXT: STREET - DAY

The Gray Man runs down the street and into an alleyway chased by Serpico, who tackles him to the ground. The metal box crashes on the sidewalk. The Gray Man breaks free, Serpico raises his revolver.

SERPICO
Hold it!

At the same moment, a radio car rounds the corner at the top of the alleyway. WATERMAN and BLOCK jump from the car and raise their revolvers. The Gray Man takes cover behind a wall -- shots are fired and hit a parked car. Serpico dives to the ground.

SERPICO
What the hell are you doing?

Serpico crawls for cover behind the wall with the Gray Man.

SERPICO
Oh, Christ! Quick.

Serpico, pushes The Gray Man against the wall and holds his revolver to him, whilst getting out his badge.

SERPICO
Get against there. Hey! I'm a police officer! Get over there! Hey! It's me, Serpico!

Fig. – 15 Photograph of Serpico *script*

The next day, with a sense that the fictional world in which *Serpico* was set was an interesting place to start to test some of the findings and theories raised in the studies, I decided I should apply a little bit more academic rigour to my slightly off-the-wall exercise. I selected a particularly interesting scene from the film (one where Serpico observes a robbery, arrests the thief, but in the process gets mistaken for a criminal and ends up getting fired upon by two of his colleagues), and transcribed the speech and stage direction. I put all of this into the format of a film script and printed it out (see Fig. – 15). I watched the scene on repeat, rewinding it countless times, and made notes with a red pen onto the script as I went. The whole thing was completely ridiculous of course. For a start, *Serpico* is set in the early 1970s, the very idea of a 'body-worn' camera is technologically 'difficult' to say the least. Ridiculous, but productive. The page was now covered in red pen. Notes, ideas, and things to investigate were crammed into the margins. I wasn't fidgeting in my chair. The main question I had written down was: when would the BWC be turned on? I opened up my laptop and returned to some of the

studies and other documents I had been looking at and that seemed relevant.[1] Working between these, the looping scene, and the annotated script, I decided what some of effects of the BWC might be, and decided on the moment when the BWC would, or should, have been turned on. It seemed odd for Serpico to have the camera, he's undercover – do undercover police wear BWCs? Something else to investigate – I decided, in the end, to give a BWC each, instead, to the two uniformed officers in the scene. I copied and pasted the script into a new document and named it 'Serpico-Alternative_Scene1'. In this new 'alternative' scene I added a line of action: 'and turned on their body worn video cameras' into the body of the text (see Fig. – 16). I printed out the script and read through it. It still made sense, but the scene after this line of action was now a strange, speculative space where the behaviours of the officers seemed even more reckless than before. I returned once more to the studies. I thought about some of their key hypotheses, highlighted in yellow, one of the main ones was the idea that BWCs might mean that officers modify their behaviour, and as a result be less likely to use force. I decided to test this in the fictional space of my alternative scene. I worked systematically through the scene and thought carefully about each piece of dialogue and action that followed the line, 'and turned on their body worn video cameras'. Would that have happened? Or that? Would the BWC make the officer think twice? Surely it would. He'd have had to be certain. As I read, I made more notes with my red pen, frantically crossing out lines of action which would, in theory, have been prevented by the BWCs. After a while, my alternative script was now also covered in red pen (Fig. – 17). So, on my laptop I made *another* copy of script and named it 'Serpico-Alternative_Scene2'. Based on the notes, I adjusted this copy of the script and redacted anything that the BWC would or should have prevented.

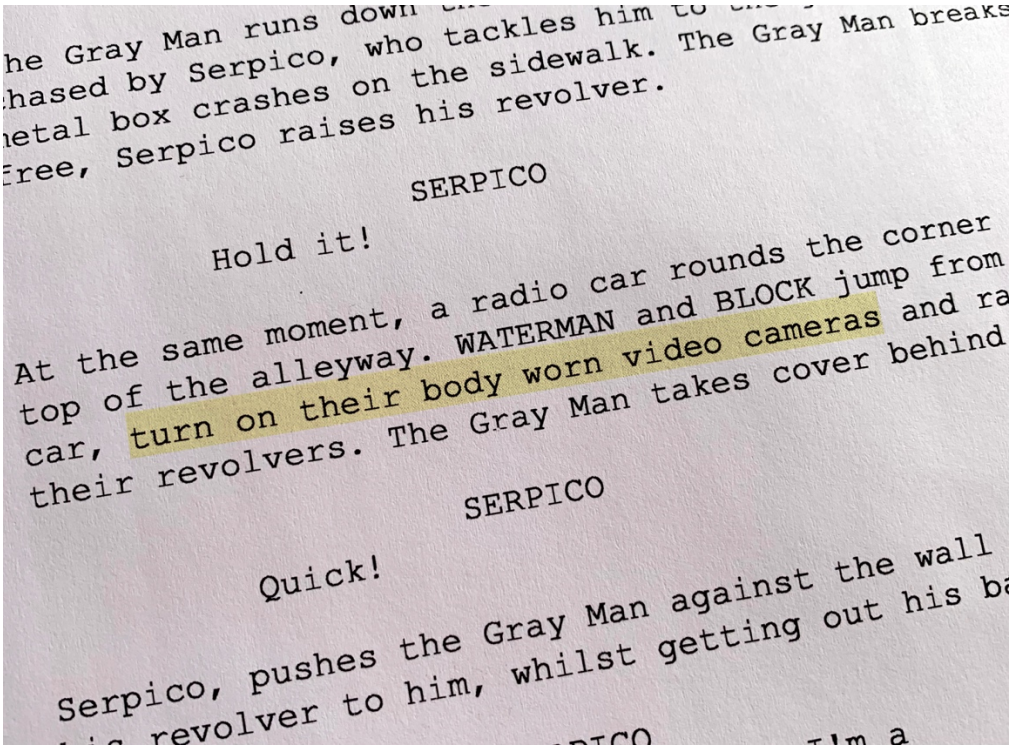


Fig. – 16 Line of alternative action "... and turned on their BWCs"

[1] *Zotero* is a piece of reference management software used to store and manage research materials and create bibliographies.

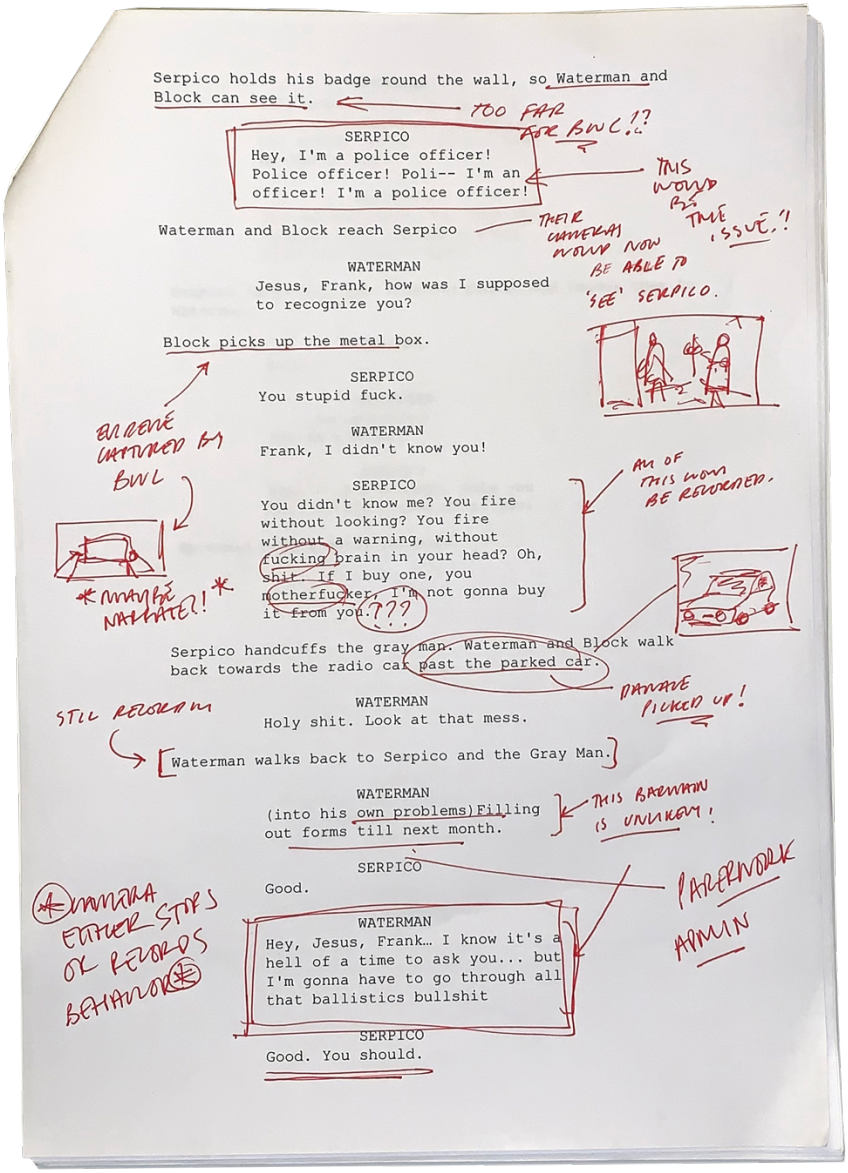


Fig. – 17 Alternative Serpico *script with annotations*

The scripting process described above has similarities both with what Simon O'Sullivan refers to as 'fictioning', which he describes as 'the deliberate imbrication of an apparent reality with other narratives' (2018, p. 53), and with the idea of 'true fiction' (Ferrell *et al.*, 2008), which was discussed in previous chapters. Because it blurs ideas between police fact and police fiction, it also echoes, in some respects, ideas in Leishman and Mason's conception of 'police factions' (2003). O'Sullivan says that fictions can have more than just an aesthetic function, and that they can act as a 'resource', a 'probe', and a 'method' (2018, p. 63). The process described above certainly shows how fiction has been a resource and a method to consider and interrogate some of the questions and ideas raised in the studies. In the scripts, the supposedly objective, scientific world of positivist criminology is brought into productive contact with the subjective and affective world of fiction; the 'evidence base' meets Frank Serpico. Reflecting on this process, what can be said about scripting as a way of knowing or making sense of material, and what do both the activity and the outcomes produced mean in relation to the broader project, and of course the BWC?

One of the first things to say is that scripting allowed a quite unique way to be *in amongst*, and think creatively

about ideas in the literature. Concepts, hypotheses, and findings raised in the studies are transformed when inserted into the conceptual and narrative space of the fiction. Rich in texture, action, and emotion the scene itself becomes a test space; a context to think *through* and *about* the concepts and findings that the studies present. Findings such as a 'reduction in the total number of incidents of use-of-force compared to control-conditions' (Ariel *et al.*, 2015, p. 25), or advice that BWCs should be turned on as soon as possible to assist with evidence collection (College of Policing, 2014) become narrative forces when inserted into the plot. When inserted into the fictional space, these ideas and concepts become things or objects that transform the narrative into a series of questions or issues to reflect on and research. The moment when the BWCs might be turned on, for instance, became something to question. At which moment *are* officers instructed to turn on their cameras? The guideline says as soon as possible, but would this be in the car, or as soon as they exit the vehicle? Are officers collecting evidence about the incident, or just the suspect? And does the car perhaps constitute a different, maybe more private, environment to that of the street? The findings, when scripted into the narrative, become instigators of future research, potential questions to ask and consider when conducting the field work visits.

Although findings and ideas raised in the studies are given a new meaning within the context of the script, it is important to note that they are not stripped of their old ones. Describing a range of prototypes that were produced for a design-led investigation into noise pollution at London's Heathrow airport, Christian Nold says that 'the devices can stack multiple ontologies on top of each other rather than having to replace one logic with another' (2018, p. 116). Similarly to Nold's devices, the scripts I produced are likewise able to stack ontologies and retain their logics, and can consequently be conceived of as *both* police fictions *and* alternative presentations of the findings of quantitative empirical research.[2] In describing his research, Nold also notes that instead of 'being accountable to a human client [his] task was to become responsive to the issue itself' (2018, p. 105). And that the prototypes produced in the course of the project were 'intended as material-semiotic devices that are simultaneously *things* as well as *concepts'* (2018, p. 105 emphasis in original), intended, in order to set up new propositions between the various actors involved in the issue of noise pollution.[3] Following Nold, we can think both of scripting as a *process* of ontological stacking, and (like the others described in this chapter) as a way of being responsive to various issues that surround the BWC, but also, crucially, as a way of producing an outcome that might function as a material-semiotic device, able present new propositions in relation to the issues that they concern.

[2] The scripts also allow for the findings of various studies to be synthesised into one document or narrative.
[3] This setting up of new propositions, Nold notes, brings with it 'ontological politics' as described by Mol (1999).

Fig. – 18 Image of Psycho traffic stop

Fig. – 19 Stills from police films on office wall

I repeated the process with other films, an excuse in many ways to immerse myself in the cop-film genre, but also because I wanted to see what material other fictions would contain. If *Serpico* is about corruption, then what ideas or issues do other films introduce? Some films, *Dirty Harry* (1971) for instance, I selected intentionally for their content: you couldn't *not* have the 'are you feeling lucky' scene, and I'd been reading about the film's protagonist, Harry Callahan, elsewhere (Rafter and Brown, 2011; Linnemann, 2019). I'd also, shamefully, never seen *Robocop* (1987), so this was an opportunity to right this wrong. Other films presented

themselves to me in a more haphazard way. I'd be watching TV and a film like *Psycho* (1960), or *Fargo* (1996) would be on and there'd be a scene involving a police officer. I was carrying around the BWC in my head and couldn't help but start to think its implications into the narrative. In total, I inserted BWC, functionally, into ten films, choosing scenes from *Black Mass* (2015); *Copland* (1997); *Fargo* (1996); *Psycho* (1960); *Heat* (1995); *Dirty Harry* (1971); *The French Connection* (1971); *Robocop* (1987); and *21 Jump Street* (2012). Of course, each of the films introduced different ideas and themes. *Robocop*, for instance, specifically addresses the topics of police technology, and techno-capitalism, and inspired a whole new area of research, and also the production of various different outcomes, such as re-edits of the film, and other kinds of scripts. The scene in Hitchcock's film, *Psycho*, was an interesting one to work with. I felt really excited when I first saw the police scene: a traffic stop, that classic cinematic trope. I was keen to work with it. But the enthusiasm faded when I started to work on the script the following day. I inserted my line of action, but the BWC did nothing to the narrative. The scene was built around the premise that although we (the viewers) could see money in the woman's handbag, it was shielded from the police officer's view. Classic Hitchcock, a master of building suspense. I re-read this adjusted *Psycho* script. On reflection I realised that although nothing actually happens in the scene, the line of action and the following inaction, actually says something vitally important about what is seen or unseen by cameras (see Fig. – 18). It made me wonder, what would have happened when, or if, the officer checked the footage later? Would the money have been in the shot? Also, if the officer was wearing a camera might he have been more thorough and taken a better look inside the vehicle? I made notes about these ideas on my script and in my notebook.

Various draft scripts now covered my desk, and I had stills from the films pinned to my office wall (see Fig. – 19). I had lots of ideas and avenues to explore. I decided to gather the scripts together and produce a single document, something I could refer to again later. I made a document containing all the alternative scripts and printed it out. This, I annotated again (see Fig. – 20), and used as a tool and resource, both when writing early draft chapters of the thesis and when preparing for fieldwork visits.

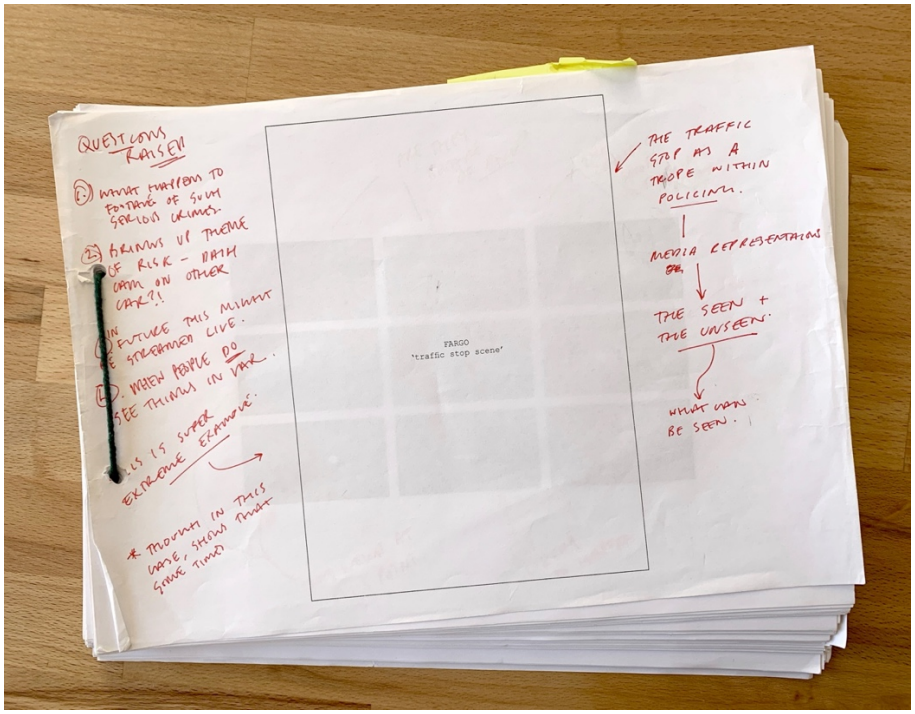


Fig. – 20 Image of collected scripts document

Scripting was productive in more than one way. On the one hand, and as has been discussed above, it offered a new way to understand and interpret studies into BWC use and the findings they present. This produced new questions and territories of research. Relatedly, the process offered a way of both engaging and considering portrayals of the police in cinema. On the other hand, and more practically, the process produced various alternative film scenes and a catalogue of alternative scripts. As noted above, following Nold (2018), these outcomes can be thought of as having stacked ontologies and existing as material-semiotic devices. Scripting presents a novel way of thinking though; dealing with a body of literature (which I had found at odds with both the *other* realities of BWCs and policing), and the outcomes it produces, introduce exciting opportunities for how policing data and research might be communicated. The scripts offer novel ways to present issues relating to the BWC, ways that can include some of the nuance and excitement of policing and which reflect, or leverage, the various worlds and realities of policing.

5.4 – Situating BWCs: Visualising Police Visibility

This section describes the process of making a small, neon-yellow book. The book visually documents the history of the police in England and Wales, from their conception, in 1829, to 2019. Like the scripting activity described in the previous section, this activity was also borne out of a sense of frustration. In this instance, that the visual material and ideas generated whilst researching the topic of police visibility, although important, just didn't seem to fit. [4] What to do with this material?

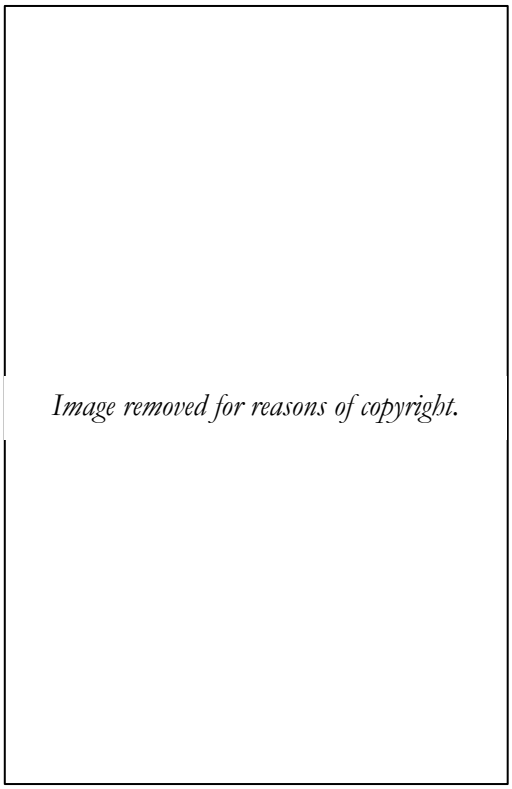


Fig. – 21 Image of police uniform

[4] This research formed much of Chapter Three, and the final outcome of this activity can be thought of as informally accompanying the chapter.

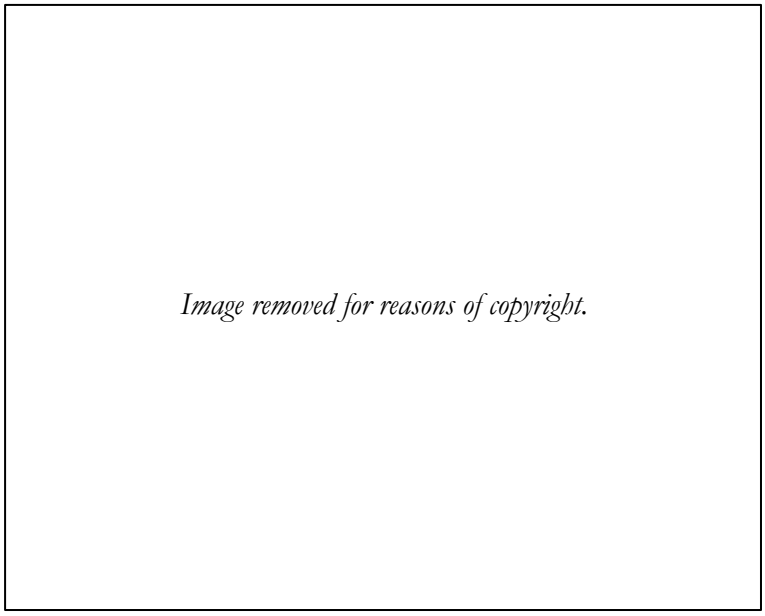


Fig. – 22 Image of police officer with radio next to a police car

I was researching the history of police visibility, trying to situate BWCs within some historical time frame and thinking about what role design has played in making the police visible. It was surprising how many texts about police visibility don't actually show images of what they are describing. Researching the history of police visibility without looking at images of the police made no sense. When thinking about the design of police uniform, for instance, I couldn't help but search out an image of what I was reading about(see Fig. – 21). It seemed almost foolish not to. There's something about looking at an image of a police officer holding their radio whilst standing next to a patrol car (see Fig. – 22) that makes the unit beat policing system make more sense. The image somehow placed the policy within a historical, cultural context. I ended up becoming a bit obsessed. If anything piqued my interest, I'd search out an image of it. The images helped me make sense of the literature and allowed me to understand the various developments within a historical timeframe. I'd scroll police history accounts on Twitter, bookmarking and screenshotting images that I thought were interesting – I still do actually. Even mundane images are fascinating.

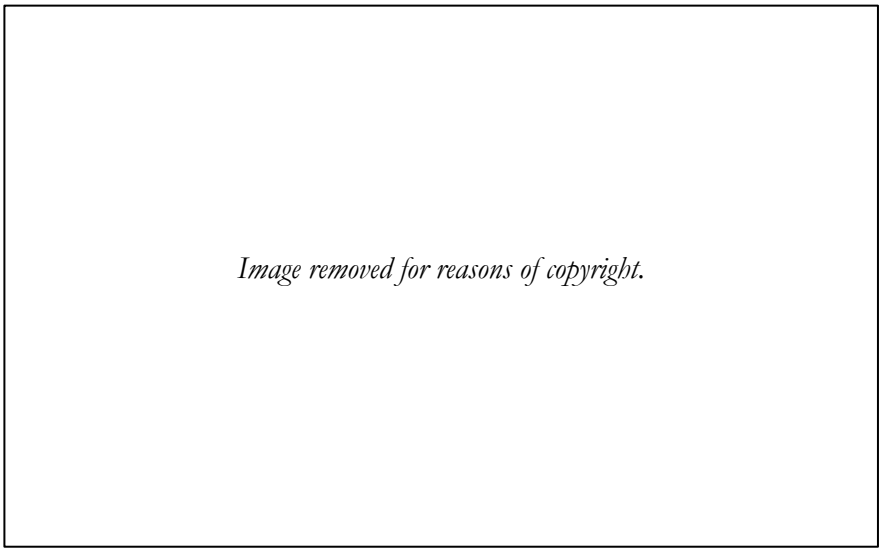


Fig. – 23 Image of police parade 1950s

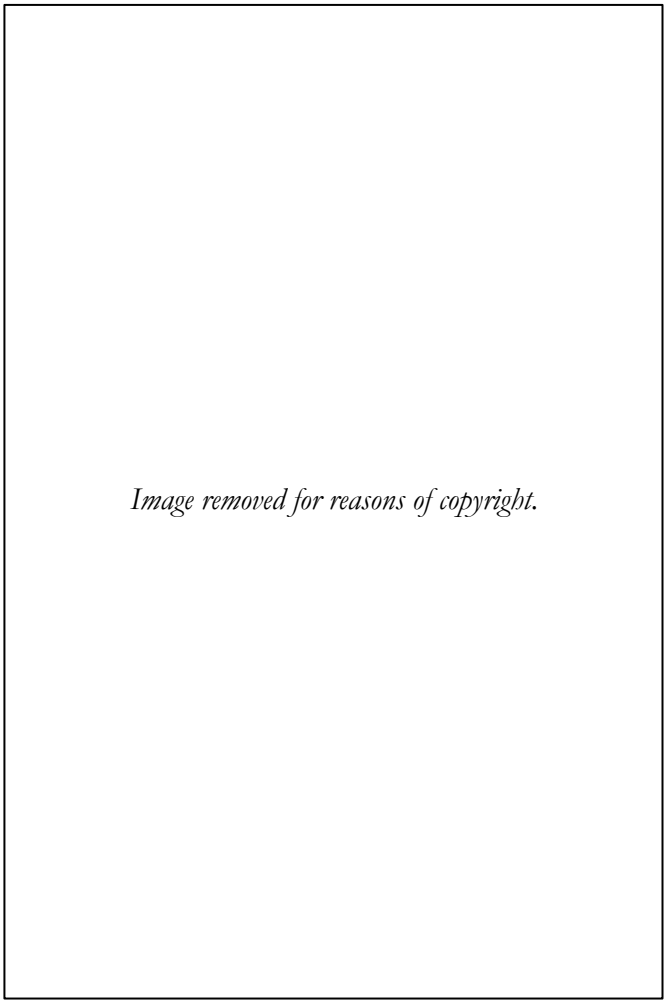


Fig. – 24 Image of police officer next to skinhead

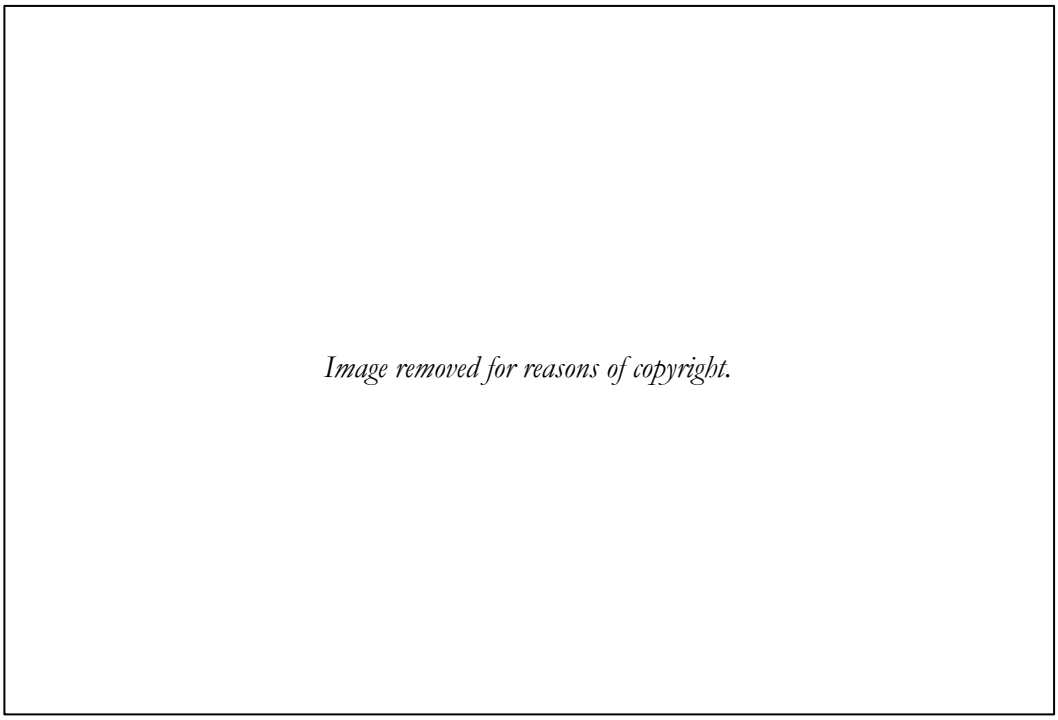


Fig. – 25 Image of police officers watching aliens cross the street circa *1960s*

An image of a parade from 1951 (see Fig. – 23), or an officer standing next to a skinhead (see Fig. – 24) taken in the early 1980s said so much (perhaps more than text ever could), both about the time each was produced and, in contrast, about policing today. The images were a reminder to think about other events taking place outside of policing. An image from the 1960s showing two officers looking on as a two of aliens cross the street (see Fig. – 25) prompted me to consider some of the other technological advances taking place at that time – things like the Space Race and the first man on the moon. The images, turning from sepia, to black and white, to the faded film stock of the 1960s, '70s and '80s, then to pixelated JPEGS around the millennium, seemed somehow to be evocative of an era, they made the history and the things I was reading seem more real and relatable. Seeing things is different to reading about them.

I continued to collect images, dragging them to the desktop of my laptop, or emailing myself screenshots from my phone. After a while, and with a desktop scattered with images that I didn't know what to do with, I selected all the images, right clicked with my mouse: 'Move to Bin' or 'New Folder with Selection (72 items)' (see Fig. – 26)? I couldn't 'Move to Bin', I couldn't just get rid of them. It felt too sad. These were my police images; I was attached to this material. New folder it was. I placed this new folder on the desktop of my laptop, named it 'Police images' (see Fig. – 27) and kept adding to it.

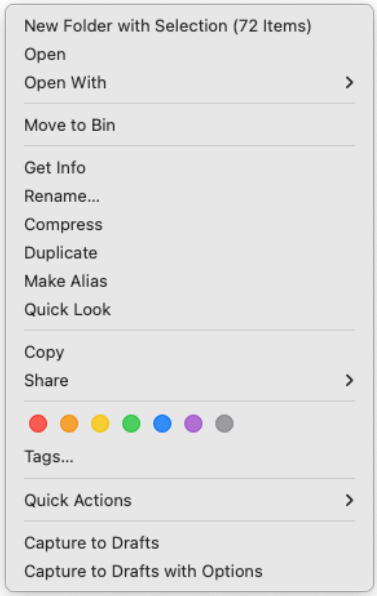


Fig. – 26 Screenshot of 'Move to Bin' or 'New Folder with Selection (72 items)'

Fig. – 27 Screenshot of folder containing police images

Both the practice of collecting, and the images in the folder, began to inform what I was writing, both directly and indirectly. If I was ever stuck, or even just bored, I'd open the folder and select an image (often at random). I'd hit the space bar and an image would expand to fill the screen. I'd toggle through the images with the arrow keys, thinking about them in relation to one another. Often, when re-drafting certain sections I would search out specific images because I knew they would help me make sense of some of the ideas I wanted to discuss. I would have them open on my computer as I wrote. Looking at this folder of images, and reminded of Howard Becker's discussion of photographs and visual sociology, in the well-thumbed copy of *Ways of Telling About Society* (2007) sitting on the shelf above my desk, I began to wonder: was there was something more to the collection of images that I had amassed? Could something be done with them? Were they actually research? I was certain I couldn't just delete the folder, what a waste. I decided that I'd print out a couple of the images that I found particularly interesting and stick them to the wall next to my desk, close, as a matter of fact, to Becker's book (see Fig. – 28). I hoped they would help me make sense of what to do with them. After a few days of looking at them while I drank my morning coffee, the images sparked an idea: could I collect an image for every year since 1829? I was well on the way surely (sadly not).

Fig. – 28 Police images on office wall near Howard Becker book

In this description, frustration is again followed by inspiration. In this instance the material (images), central to the research and important as a collection, deserved more, or perhaps a different kind, of attention. The above talks about how images speak to us in different ways to words, and mentions Howard Becker's discussion of photographs and visual sociology in the book *Ways of Telling About Society* (2007). In the book, Becker references

Douglas Harper (whose *Photo Elicitation* method I will return to in Chapter Seven), saying Harper uses photographs 'not as illustrations [...] but as elements integral to the sociological investigation' (2007, p. 199). The centrality of images to the research process chimes with the above description. The images directed the process that they played an integral role in the thinking and knowledge which was produced. It is worth noting that Becker also talks about how images relate to the contexts in which they are shown, saying that 'the same image can have quite different meanings, as it is used in different settings' (2007, p. 203); ideas that I will discuss further below. Elsewhere, Harper explicitly addresses this idea, that seeing is different to reading (2012). Drawing on Becker's (2007) suggestion that sociologists should learn to analyse images, Harper says that by studying an image we can 'understand a great deal about a culture' (2012, p. 9). This difference, he argues, means that visual sociology 'leads to new understandings and insights because it connects to *different* realities than do conventional empirical research methods' (2012, p. 4 emphasis added). Certainly, the affective quality of the images, as noted above, suggests a different kind of meaning, and way of connecting with ideas. Likewise, the power of images to introduce additional contextual information, and the way in which images are made, meant that Unit Beat policing seemed somehow more real.

On the face of it, both the process, and the images described above, seem to be almost exclusively about seeing, something, I claimed in the previous chapter, that making can shift the emphasis away from. Having said that, in the above description, I said deleting the images felt sad: I was attached to them as a collection. I spoke of the images having an affective quality. The *feeling* of attachment is important, and is revealing, in many respects, as to why making is both a somewhat unique and transformative (Mol, 2021) way of knowing. I wasn't just *looking* at the images. I was also *making* connections and *making* an archive, or index, the relationships between the images and the fact they existed as a body of research was important. Even as an emerging collection of seventy-two, the images demanded both to be saved, and added to. The search for images, something that initially had felt like procrastination, had, somewhere along the line, become practice.

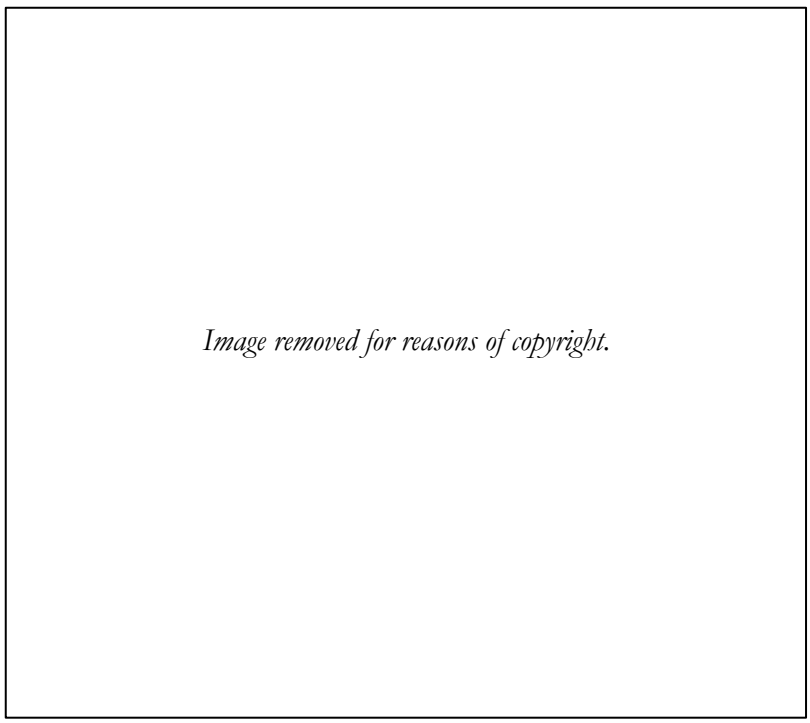


Fig. – 29 Image of police officer with speed camera

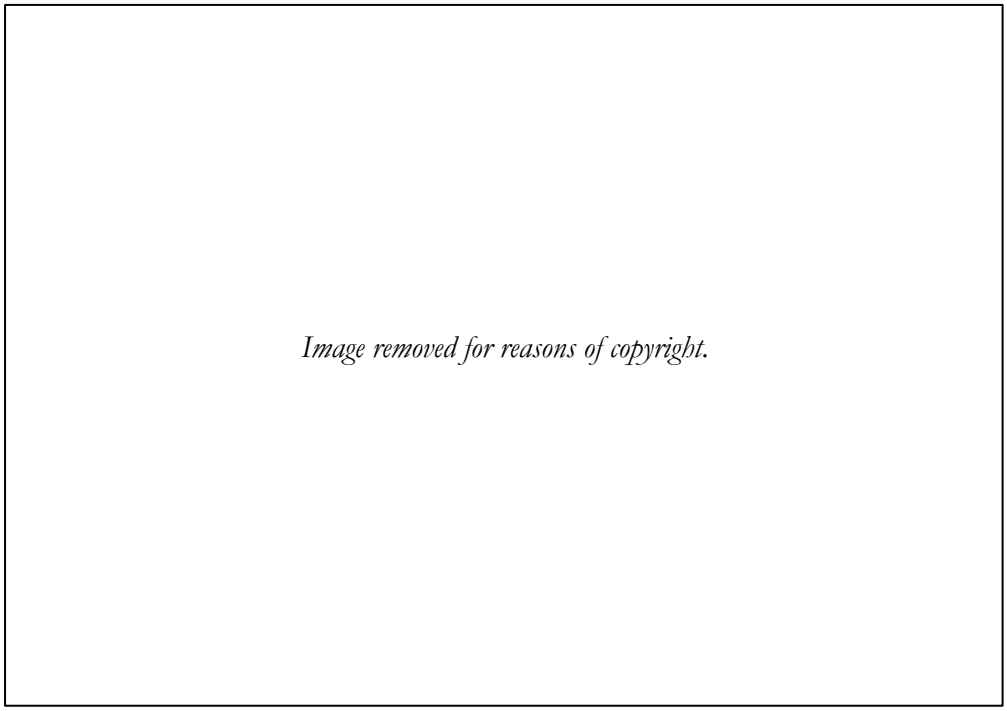


Fig. – 30 Image of 2011 London uprisings

As I began to search for images, gradually gathering more and more, I wondered what the officers I had been talking on the phone to, and who I was imminently going visit, would make of them. What would they have to say about the image of a parade in the 1950s? Undoubtedly, it'd mean something different to them than it did to me. And what would they have to say about the more recent images, one of Extinction Rebellion protests, for example? I wondered what they thought about protests in general. Do BWCs get used in protests? I already knew I wanted to talk to them about how BWCs and smartphones had influenced their visibility, and an image like this seemed like a great way to get this conversation going. In fact, the images would be a great way to start all sorts of conversations. But how to show nearly two hundred images? I knew that I was going to be with response officers, so would be in and out of a police car, and the station. Initially, I toyed with the idea of making a slideshow – something that I could show on my phone, or on an iPad – but this didn't feel right. I wanted the officers to get a sense of the importance of the images, to get a sense that I'd selected each one carefully, and more importantly, that they were part of a collection. I decided that I would produce a book. One which I could fit in my pocket and could pass around easily during the visit.

I started to organise the images I had. Making folders for each of the decades, one for 1830, one for 1840, and so on. I needed more images. I continued to search, and after a while had images for *most* of the years. With the officers in mind, I selected many of the images strategically. The image of an officer with a radio, standing next to motorcar, would allow me to bring up the topic of unit beat policing, and some of the impacts that motorcars and police radio had had on visibility (perhaps I could introduce the idea of cars and radios as functioning as a one *singular* technology). There was an image I had of an officer with a speed camera (see Fig. – 29), that I thought would be interesting too – another camera used to record, or prevent, crime. Other images were chosen because they were funny – I thought these might be good for breaking the ice. And some were selected because of a particular historical significance: it seemed important to include an image of the of the 2011 London Riots (see Fig. – 30), for example. As I searched for the final elusive images, I began to lay out the

document in *InDesign* (see Fig. – 31).[5] Manipulating the images in this digital space forced me to considered each of them, again, in turn. Being with the images in this software was strangely tactile, the process forced a certain slowness. As I worked on the document, I thought about their meaning, their relevance to police visibility, and to the BWC. I made notes.

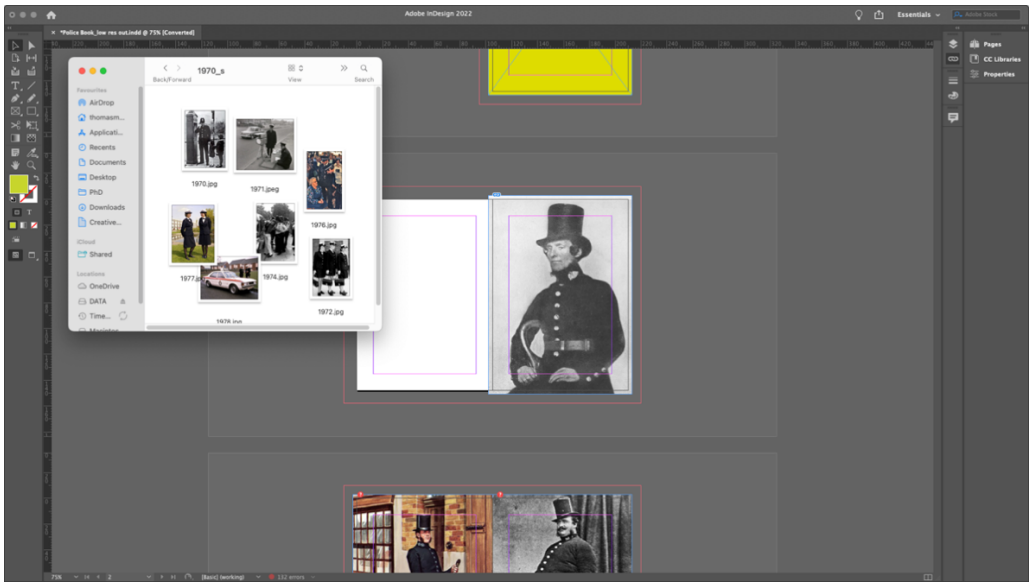


Fig. – 31 Screenshot of InDesign *layout*

Fig. – 32 Photograph of proofs of book

In terms of design, I wanted the focus to be on the images, so I decided not to include text or titles, apart from a line on the inside of the front cover which simply read: 'A visual history of the police in England & Wales (1829

[5] *InDesign* is a piece of software used for print and digital graphic design layouts.

to 2019)'. The outside cover I also kept plain, including only my email address on the back, who knows maybe someone might want to get in touch. I made the book bright yellow. This was a reference to high-visibility jackets that police wear, but also because I hoped might better catch the officers' attention. I also wanted it to stand out from their police notebook and other small black pieces of technology that are common in a police setting. I decided that there should be multiple copies, this way I could distribute books amongst officers, and in doing so, overcome the issue of the book's size (being small the book wouldn't lend itself to being viewed by more than one person at a time). Multiple books would also allow for connections to be made between different images on different pages. It also meant that I could give copies to people if they were interested in taking one. After printing some proofs, and checking the size was right (see Fig. – 32). I sent a PDF off to the printers and waited for the books to arrive. A week later I opened a box containing forty small, neon-yellow books (see Fig. – 33) I excitedly flicked through one before testing, again, that it fitted in my pocket.

Fig. – 33 Photograph of box of books

In many respects, the above describes a typical solution-oriented design process. A product, in this case a book, was designed for a specific context and a specific purpose, namely, to introduce police officers to the idea of police visibility. It is worth noting, however, that unlike some conventional design products, this one was inspired by an engagement and a commitment to the material generated through research. More traditional research came first rather than second in this process. I will return to the book and the conversations that it engendered again, in Chapter Seven, but here I will focus on the *process* of making the book: what was learnt? And how did this making process force me to slow down, consider, and engage with the images in different ways?

In Chapter Two, in relation to a call for a 'slow criminology of socio-technical orderings' (Savoie *et al.*, 2017), I discussed Stengers' conception of 'slowing down' (2018). Slowing down, Stengers argues, allows researchers to attend to what is messy and doesn't fit with 'objective, categories' (2018, p. 120). Making, as described above, offers an intriguing way of being with ideas and material, and for slowing down. The process of making the book required both a practical engagement with the collected images as material, and this engagement offered new conceptual insights. Spuybroek, as noted in the previous chapter, likened the design process to that of a chef saying that it involves both bringing things together, but also, critically, sensing where they are going (2011). The above, in relation to what Spuybroek says, can be thought about in a number of ways. We can think, for instance, about how the components, images, paper, ideas, etc., are brought together through making, to produce the design for the book. And we can think about where the materials are going, both in the sense of the images being important, needing attention and to be looked after, but also in relation to the place or context in which the book will be used or exist. Material was incorporated and selected for specific reasons, for instance, the image of the car and the radio might prompt a discussion about unit beat policing, whereas the image of the 2011 London Riots would allow me to discuss a personal experience of policing and situate myself geographically as a researcher. With this, and an idea of a future context, and Stengers' notion of slowness in mind, making can be thought of as having quite distinct temporal qualities. It is both a way of slowing down, but also a way of anticipating and considering the material in relation to an anticipated future context and audience.

5.5 – Soldering BWCs: Interfering with the Black Box

This final section describes the process of making my own BWC, or rather, it describes making a range of BWCs. Like the previous two sections, this activity also stemmed from a sense of frustration. In this instance, a question that had been cropping up since the early stages of the project. As will be described, the process of making here was not only a way to answer, or respond, to this question, but offered an opportunity to both make sense of, and play with, the theories I had been researching, and to develop strategies for their communication.

I'd been asked *again,* "so are you making a new BWC?" I usually responded with a pretty stock answer: "the ones that already existed were already pretty good", and "I'm more interested in knowing more about them as we probably don't know enough". I'd then talk about the stuff I was reading at the time, for example stuff, about the philosophy of technology, and most people would get the idea: I wasn't interested in making another BWC. Or was I? There was something about the question that did intrigue me. And there was a question: what would a BWC for research look like? One particular time someone asked me the question, and enough was enough. I'd spent the morning writing about how BWCs were 'relatively simple pieces of technology', so I decided I would give making one a shot. I mean, how hard could it be? Even with my very limited experience with physical computing, I was confident that I could make a basic camera with a Raspberry Pi, and I could certainly cobble together some kind of casing for it to go in.[6] I put out the feelers to see if anyone I knew had a soldering iron that I could borrow, and after some Googling I had a list of the components I thought I would need: a USB battery pack, some small lengths of wire, a lens, a button, some LEDs, and obviously, a Raspberry Pi. I decided to

[6] A Raspberry Pi is a small low-cost single-board computer commonly used in prototyping and DIY electronics projects. The Raspberry Pi used in this project was purchased for £4.65.

spend a couple of extra quid on a fisheye lens to match the lens on a BWC, hang the expense. I double checked my shopping basket, entered my credit card details, and clicked confirm. Confirmation email received.

```
# Configurable stuff...
INTERVAL=15            # Time between captures, in seconds
WIDTH=1280             # Image width in pixels
HEIGHT=720             # Image height in pixels
QUALITY=51             # JPEG image quality (0-100)
DEST=/boot/timelapse   # Destination directory (MUST NOT CONTAIN
NUMBERS)
PREFIX=img             # Image prefix (MUST NOT CONTAIN NUMBERS)
HALT=21                # Halt button GPIO pin (other end to GND)
LED=5                  # Status LED pin (v2 Pi cam lacks built-in
LED)
prevtime=0             # Time of last capture (0 = do 1st image
immediately)

gpio -g mode $HALT up  # Initialize GPIO states
gpio -g mode $LED  out
mkdir -p $DEST         # Create destination directory (if not
present)

# Find index of last image (if any) in directory, start at this + 1
FRAME=$(($(find $DEST -name "*.jpg" -printf %f\\n | sed 's/^[^1-
9]*//g' | sort -rn | head -1 | sed 's/[^0-9]//g') + 1))

while :          # Forever
do
    while : # Until next image capture time
    do
        currenttime=$(date +%s)
        if [ $(($currenttime-$prevtime)) -ge $INTERVAL ]; then
            break # Time for next image cap
        fi
        # Check for halt button -- hold >= 2 sec
        while [ $(gpio -g read $HALT) -eq 0 ]; do
```

Fig. – 34 Screenshot of code for homemade BWC

As I waited for the components to arrive, I tried to make sense of the software. After a bit of playing around, and some very helpful conversations with old friends who are much more technically savvy than myself, I realised that this would be harder than I thought. Nonetheless, after a while I was relatively confident that what I had cobbled together from chunks of code posted on GitHub (see Fig. – 34) would, at the very least, be able to take a photo.[7] The process of making the BWC was an interesting one, composed of two quite separate parts. One, quite practical, working out what I would need and buying the parts, and two, searching forums for lines of code. Nonetheless, already I felt like I was getting a glimpse inside the BWC as a black box, revealing the internal complexity of the technology. The BWC now felt somehow open to possibility. I felt that I understood it more intimately. Once I was happy with the code, I mounted it onto a microSD memory card ready for the camera. The following day a box arrived, and in it, the parts for my BWC. The Raspberry Pi was smaller than I had imagined. I turned it over in my hand – crazy to think that this cheap, green, printed circuit board had many more times computing power than the computer that put the man on the moon. I thought about how technology had changed since then, and about an image of two police officers looking at aliens cross a street (see Fig. – 25). I went and got the soldering iron I had been lent.

[7] GitHub is an online repository for sharing and developing software.

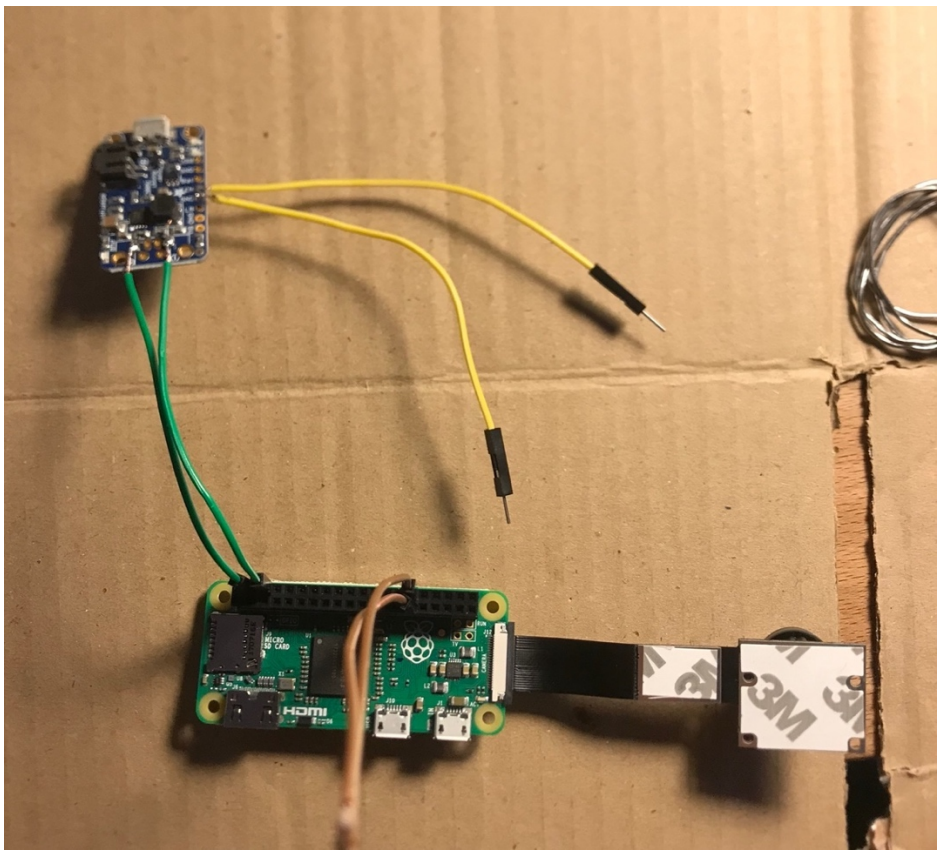


Fig. – 35 Process of making BWC

It had been years since I had soldered anything, but after a couple of tests with a few of pieces of spare wire I was ready to begin soldering my components (see Fig. – 35). Deep breath. Maybe I should have bought some spares. I better had not mess this up. The first thing to do was solder something called a '40-pin female header' onto the Raspberry Pi. This part allows for different components, things like the switch and the LEDs, to be attached to the Raspberry Pi's GPIO (General Purpose Input/Output). The GPIO is basically the bridge between the outside world and the computer itself. On the 40-pin female header there are two rows of 20 little metal pins and these line up with two rows of slightly bigger holes on the Raspberry Pi. Put the two together and the pins poke out of the back of the board. I plucked up the courage and soldered the first of the pins to the board. Not perfect, but passable. Thirty-nine to go. Once the adrenaline had worn off, soldering, in the end, was quite a mediative experience. As I was working, I thought about some of the ideas I had written down in the margins of the scripts, which were still on my desk. Things like: how would live facial recognition work here? This would be in the code. I wondered if there was face tracking script on GitHub, probably. I also began to wonder what other things could trigger a recording to begin. Could it be turned on by a keyword, "TASER" perhaps, maybe when voices were raised, and audio levels reached a certain point. Maybe sirens, or flashing lights could start the recording? Could the BWC respond to stress? What is stress for a wearable technology, heart rate? I knew from a previous visit that lots of the officers wore smartwatches and fitness tracking wristbands. Maybe a heart rate monitor could be used to trigger recording. I'd bring this up when I was next with officers. What other sensors could you to plug in? I wondered what the officers would suggest.

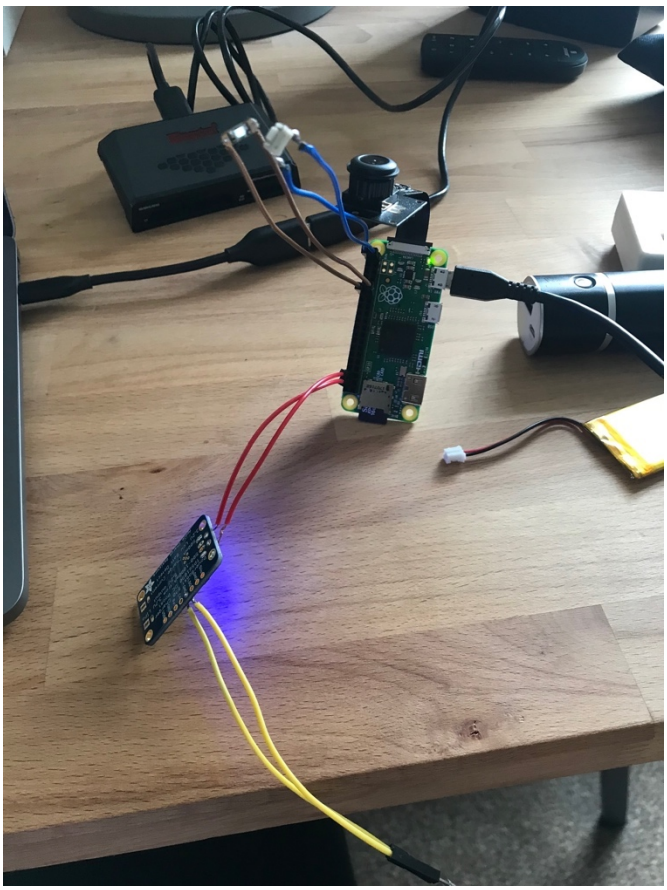


Fig. – 36 Components attached to Raspberry Pi

I finished soldering and attached the lens, a button I had soldered to two lengths of blue wire, an LED attached to some brown wire, and an on/off switch, which was on yellow wire (see Fig. – 36). I inserted the microSD card with my code into the thing (now technically a camera) and plugged in a USB power supply. Cue a flickering green LED on the Raspberry Pi as it booted. I held my breath. Blue light – the 'camera' worked! I clicked the little 'shoot' button on the blue wires, and peered into the fisheye lens, as if I might be able to somehow see into the black box I had just created and see the code running. The camera was on, but I wasn't really sure what to do, so I took a photo of it with my phone. Snap. Afterwards I held the shoot button for three seconds turning the camera off. I removed the memory card and plugged it into my card reader. In a folder on my laptop, I found the 'camera' and downloaded the files to the desktop. I opened file 'BWC00001.jpg' (see Fig. – 37). Upside down, I'd have to change that in the code, but success! It worked!

Fig. – 37 Image 'BWC00001.jpg' Taken with homemade BWC

Throughout this thesis I have referenced the concept of the black box; a technology that is reduced to inputs and outputs so that its internal complexity is hidden (Latour, 1999). I have said that by following the BWCs into and out of various worlds, one of the aims of the project was to shed light on the BWC as a black box. In Chapter Two, drawing on Winner (1993), I also questioned if simply opening the black box is enough, and suggested that design might offer a way of overcoming Winner's criticism. The above describes a process of making that is both inspired by the concept of the black box, but also represents a somewhat unique way of engaging with the BWC as one. Making introduces a mutability to the BWC. It offers a way to speculate on features or capabilities that might be added to BWCs in the future, and considers their implications; a way of turning it from a matter of fact to a matter of concern (Latour, 2004). Similar to the scripts and the book described in previous sections, this process of making is informed directly by the academic literature I had been reading. It offered a way of coming to terms materially with the internal complexity of a technology, such as a BWC.

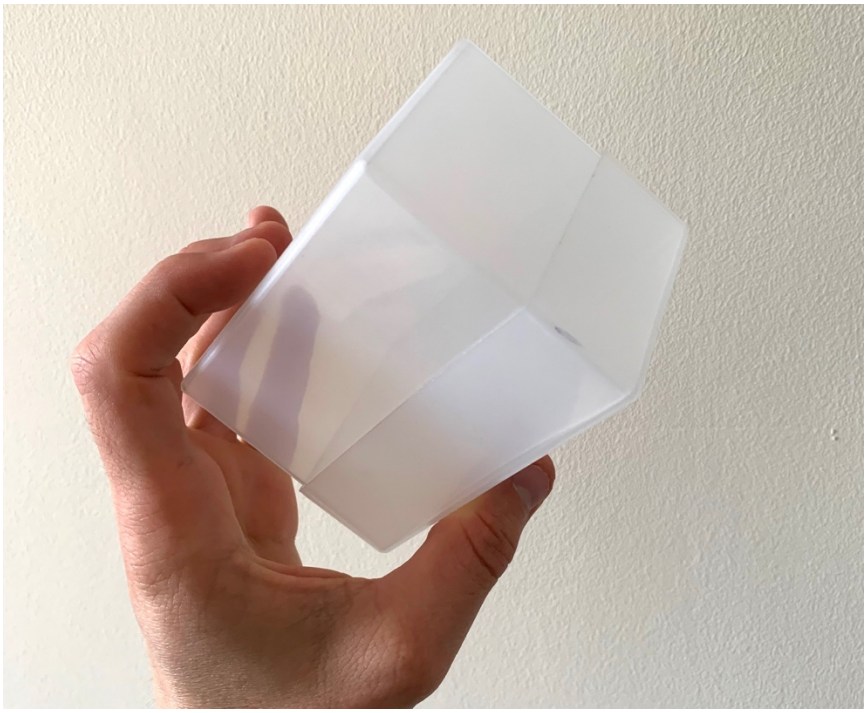


Fig. – 38 Transparent business card box

I had a camera, but it wasn't a BWC. It only really worked when laid out on my desk. It needed a way to be worn. I needed to make a case for it. With this idea of the black box still on my mind, and still this question of what a BWC for research might look like, I knew that copying the knurled, black casing that you find on a police BWC wasn't right for my camera. There was something important about seeing the mess of the wires and the blinking of LEDs. They reflected a kind of plasticity to the technology, if you could see how it was made, the camera somehow wasn't fixed, but was instead open to possibility. Questions of how the camera might be programmed differently still seemed tangible and imaginable. I decided the casing needed to be clear. I searched around my office and managed to find an empty, and crucially, transparent, business card holder which would just about fit the camera inside (see Fig. – 38). To this transparent box, I attached a police issue 'Klick Fast' fastening that I'd purchased on eBay for a previous project – a subtle nod to the context in which this alternative BWC was connected to.[8] I drilled holes in the box for the buttons and the lens to poke through. The camera could now be worn (see Fig. – 39). I attached the camera to my body, turned it on, and walked about taking some images. The camera was part of me, or I was part of the camera.

[8] 'KlickFast' are a company who produce a system for attaching equipment to belts, body armour, etc.

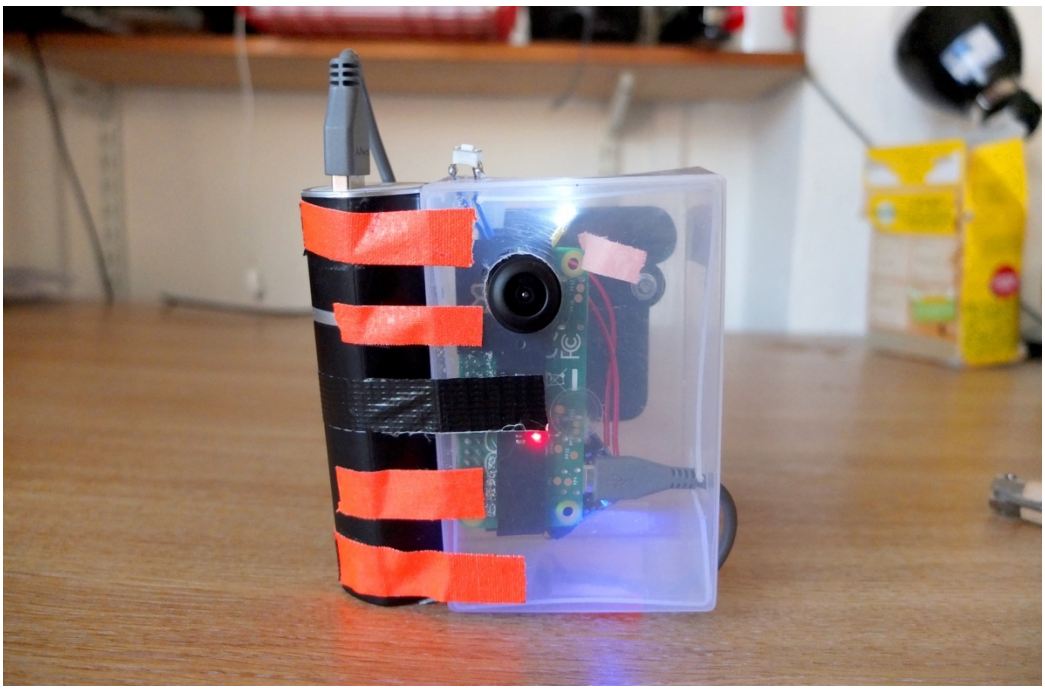


Fig. – 39 Final homemade BWC

The question of what a BWC for research might look like was an intriguing one, and one which allowed me to further orientate this making activity towards the police and the upcoming fieldwork. I designed my camera so that it would be similar to the cameras that the officers would be wearing (it had a wide-angle lens, an on button, and had the same kind of attachment), but also, to be different enough so as to prompt intrigue. The decision to use a clear box was, on the one hand, a bit of a joke; a direct play on the black box in STS, but was also a key feature of the design; a way to introduce the officers I was meeting with the complexity and inner workings of a technology.[9] The appearance of my BWC was central to how I wanted my camera to function as a material semiotic device, and as an object for participatory speculation (Ward, 2015).

The second activity described in this section was prompted by this question of what a BWC for research might look like and how I chose to package my own BWC. In this second part of the section, I discuss working with an industrial designer to make a series of professional quality 3D renders of alternative BWCs that I could show to the officers I was due to meet.

I messaged J, an old friend who I knew was pretty good at using *Solidworks* (certainly better than me), and asked him if he was free to help me to produce some renders of some alternative BWCs.[10] They replied saying They'd only ever seen a BWC on an officer in the street and had only a very vague idea of what they looked like, but in principle, "yes, sounds fun". I sent J a few screenshots of different BWCs, and we agreed to meet for a coffee later that week. Before our meeting I thought more about what I would ask J to do. Initially I thought about asking J to produce some really weird BWCs – maybe an inflatable one, or one that required more than one person to operate, I even sketched a few of these ideas out (see Fig. – 40). But, like the other things I had made, I wanted to show these during my fieldwork visits, and I was worried that the officers might reject them as

[9] Daniel Weil's "Bag" Radio, designed 1981, is worth noting here as an example of an existing design work that functions in a very similar way.
[10] *Solidworks* is industry standard CAD (computer-aided design) modelling software.

propositions if they were too abstract, or indeed, weird. Like the homemade BWC, I wanted the renders to be similar to the ones that the officers use. I wanted them to recognise the renders and for them to exist in a speculative space that was different, but certainly within the realms of possibility. I hoped that by doing so, the discussion that the renders would provoke might to shed light of the design of the existing cameras. In the end I decided that we should make relatively minimal changes – things like colour and styling – essentially alternatives to the black box of normal BWCs and the clear box on my BWC. I mapped out a couple of ideas and collected some reference images for J, but I was keen to get their opinions and to use our discussion as a way of generating a range of possible alternatives.

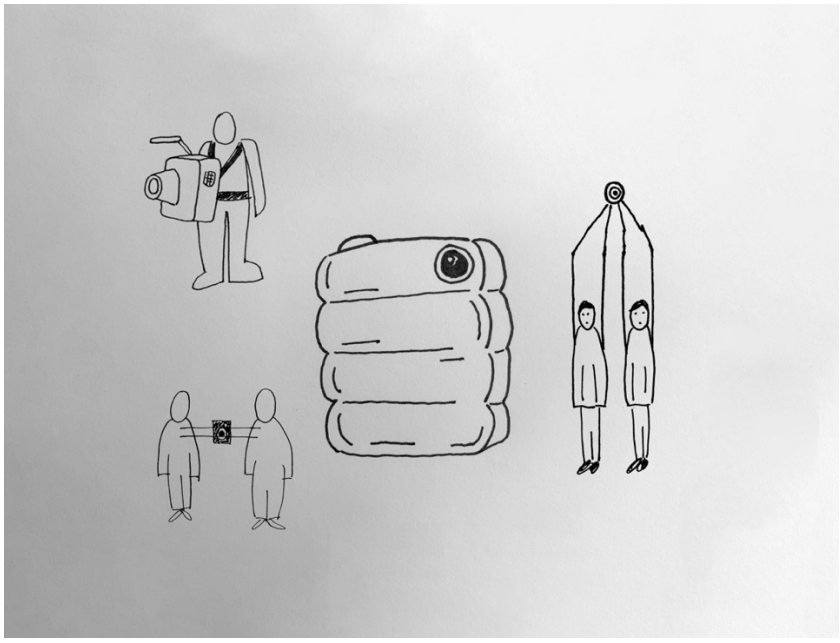


Fig. – 40 Sketches of 'weird' BWCs

The decisions about how the alternative BWCs should look, and how they might be received, echo points made by Dunne and Raby, when describing their 'Placebo Objects'. Placebo objects were similarly designed to elicit stories and conversations, and in doing so, investigate users relationships with electronic objects (2001). My alternative BWC renders, much like the placebos, were intended to be 'vaguely familiar' and 'open-ended enough to prompt stories but not so open as to bewilder' (2001, p. 75). That said, whereas their approach was concerned with discovering ideas and stories from *outside* the mainstream, mine are more concerned with allowing a range of officers to uncover or channel ideas and predictions about the BWCs that they use on a daily basis.

My meeting with J covered a range of topics. J was primarily interested in the functionality and practicality of existing BWCs and about the implications of these design decisions. Some of these, although seemingly obvious, I hadn't considered. One of the first things that J pointed out after my brief intro' was that the BWCs' black rubberised casing, although making them resistant to dirt and scuffs, meant that they were quite hidden on the officer's uniform, "they don't stand out at all. It would be hard to see they were even wearing one".[11] I noted that lots of the literature discusses BWCs as a deterrent, "if that's the case then another colour would

[11] It is worth noting that the Met. Police, who use Axon Body cameras, have applied yellow stickers with a CCTV logo to their cameras, presumably in a bid to rectify this issue.

make more sense surely". Another implication of the black casing, J said, was that "they look pretty damn macho". I discussed some of the potential reasons for this, for example, the BWCs origins in in the TASER device.

We then discussed what changes to make. First, colour. Based on J's observation about BWCs being 'macho', we decided to play with the idea of gendered producers and, very crudely, decided to produce a blue and a pink camera. This, we thought, might prompt conversations about the design of existing BWCs in relation to gender, and maybe even police technology and police uniforms more broadly. As well as a pink and a blue camera we decided to make silver and a beige version. This was a nod towards consumer electronic devices from the 2000s and 1990s, things like DVD players and early PCs. This might be a quick way of talking about the role of other legacy technologies in policing – and we were interested as to what they might look like. I asked J if they could remove some of the rugged knurled casing and make a camera that looked less like a piece of military hardware, and more 'luxurious'. We had a list (see Fig. – 41). As they worked, J would ask me questions, about, for example, the size and positioning of some of the buttons. This prompted an idea. I asked J to add another button to the BWC. I'd been reflecting on the various possibilities that had occurred to me while soldering and I thought a button might be an interesting way pose a similar kind of speculative question to the officers. What would you use the button for? The following week J sent me an email with a folder containing ten alternative BWCs. I opened them on my laptop (see Fig. – 42).

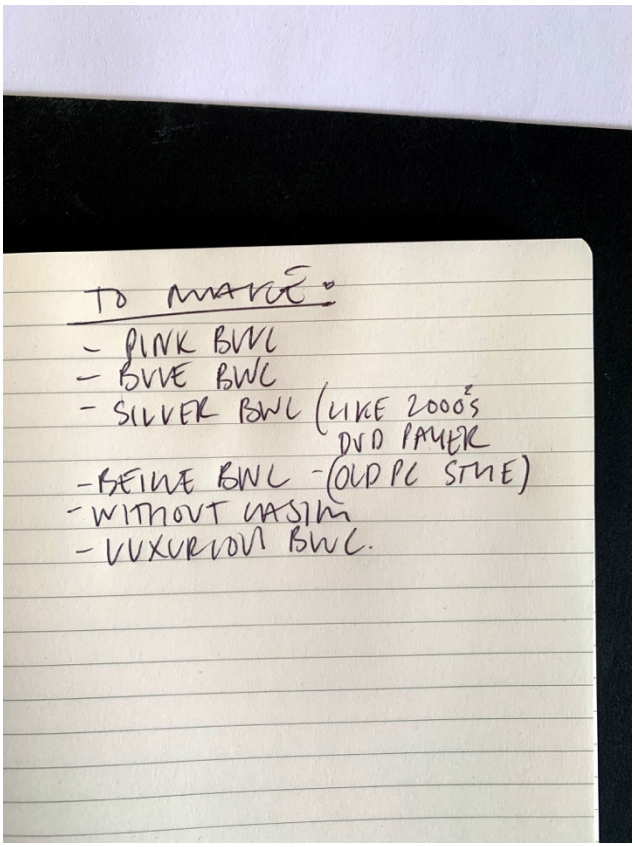


Fig. – 41 List of alternative BWCs

Fig. – 42 Alternative BWC

The second part of this section shows how making not only generates ideas and outcomes, but also how both of these present avenues for new makings. These alternative BWC renders are the direct result of a question that arose when deciding on the casing for my own homemade BWC. And the idea for the BWC with the additional button was a direct result of ideas I had had while slowly soldering the Raspberry Pi. The process of designing these alternative BWCs with J was revealing in a number of ways. Firstly, the process reveals how inviting someone who is an outsider to the project can help to reframe ideas and concepts. J's comments that it looked macho, and that, being black, it was hidden against the uniform on the body of the officer, were things that I had either missed or was no longer focusing on. These viewpoints prompted me to think again about the BWC. Secondly, my expectations, or perhaps fears, of what sorts of speculative propositions the officers I was due to meet would, or would not, be willing to entertain, is intriguing. Such fears may well have been unfounded, nonetheless they suggest a degree of caution on my part, one of not setting myself up as too much of an 'outsider', (ideas also discussed in Chapter Four). Moreover, recalling Spuybroek's notion that making involves sensing where things are going, the process then reveals something about my expectations of the field and the research participants.

5.6 – Conclusion

This chapter has described three activities, *Scripting BWCs*, *Situating BWCs*, and *Soldering BWCs*. Each of these activities evidences how making offers a unique way of knowing the BWC as an object of study, and how ideas can be materially investigated. The first activity described how scripts were used as ideational tools; ways of thinking through literature and generating questions. Drawing on Nold's (2018) description of 'ontological stacking', I described how various worlds of policing (quantitative, experienced, and mediated) were able to coexist within the narrative frame of the scripts. I described how the script format was used, both as a productive device for considering and thinking through the implications of technology and generating ideas and questions, and also offering a novel way to present and communicate data about policing. The second activity described the production of a small, neon-yellow book. Here, the visual material generated while undertaking research about police visibility, although of vital importance and value to the research, didn't fit with 'orthodox' mode of academic communication,

and required another vehicle. Drawing on discussions of images and visual sociology from both Becker, and Harper, I argued that images, and more specifically, making with images, offered a unique way of slowing down (following Stengers (2018)). The third activity (or perhaps activities) described the process of making a series of alternative BWCs. Here, the processes, techniques, and software programs of industrial product design were used to 'open up' the BWC, in both a literal and a metaphorical sense. In these activities, making offered a distinct way of considering the existing design and features of BWCs for considering potential functionality in the future, and a way to think through and communicate concepts from the literature I was reading.

Common to all of the activities described in this chapter is the idea that making offers a unique way of engaging with, and making sense of, material. Making offers a way of being in and amongst material, and resultingly, a unique way of knowing about it. In each of the activities, the inspiration to *start* making was prompted, not with a particular outcome or human client in mind, but instead from a commitment to material and by a frustration that things didn't fit, or that the orthodox modes of communication or investigation were unsuitable. Recalling Gaver, making was, 'a route to discovery' (2012, p. 942). As noted above, making, following Stengers (2018), offers a way to 'slow down' and attend to what is both messy and complex, and that which escapes 'so-called objective, categories' (2018, p. 120). Considering the call from Savoie *et al.*, (2017) for 'a slow criminology of sociotechnical orderings', as discussed in previous chapters, making offers an exciting way in which this might be achieved. Making as described above also allows for the production of devices or outcomes in which numerous ontologies can be 'stacked' (Nold, 2018), and that exist as material-semiotic devices that are simultaneously both theory and things.

The making activities described in this chapter have produced various outcomes: a series of semi-speculative film and television scripts, a small, neon-yellow book, a 'homemade' BWC, and a series of alternative BWC renders. These exist as knowledge objects in their own right; outcomes which, 'exist with 'a definiteness and level of detail that would be difficult or impossible to attain in a written (or diagrammatic) account' (Gaver, 2012, p. 944). However, as was touched upon above, they have also played a role in this project as research devices.[12] I will return to them in Chapter Seven, which discusses how they were used as 'research technologies' with police officers in Fritton.

[12] In many cases, for instance in the case with the neon-yellow book, this function was taken into account when designing them.

Anecdote: Watching the Police

The morning had been ‘Q’ and I think the officers were relieved when a call finally came in and there was a valid reason to turn on the ‘blues and twos’. [13] Within a split second the sirens were on and the cars in the traffic jam peeled away in front of us. The police car accelerated quickly throwing us backwards into our seats. We passed through a series of red lights, and cornered a roundabout, the tyres screeching. The officer in the passenger seat turned to me in the back and grinned, “class isn’t it [...] feels like being in a film or something”, I nodded, and gripped the handle above the window a little bit harder.

Later, we parked the car and climbed the steps to the open plan office space of the police station. The officers I was with chose a desk, plugged in their laptops, and opened the evidence management software. Not wanting to get in the way or disturb them, I made the three of us cups of tea. For the next thirty to forty minutes they worked quickly and systematically, decided between themselves who would fill out what. Aside from a few acronyms I had come to recognise, but didn’t really understand, the only real noise was the tapping of the keys on their keyboards and the clicks of their mice. It was midnight, an hour past the end of the shift, and one of them looked up from their laptop and said, “you can go mate, this is all pretty boring, and it looks like I’m going to have to go back [to the custody suite]”. After returning from custody (a fifty-minute round trip) it was close to 2:00 am. I made another tea, and the officer got back to their paperwork. As I said goodbye, at close to 3:00 am, the officer said that hopefully we’d have something more exciting tomorrow.

[13] Instead of tempting providence police officers prefer not to use the word ‘quiet’ and abbreviate to ‘Q’ instead.

Chapter 6:
Three Scenes, Three BWCs

6.1 – Introduction

This chapter examines the BWC in relation to Andrew Barry's concept of 'interactivity' (2001) and describes various ways in which I observed the interactivity of the BWC enacted by response officers.[1] The chapter is based on observations conducted with officers over nine days in October 2019, the practical and ethical details of which were discussed in Chapter Four. By and large, the examples described relate to one specific 'call-out' which is detailed in a script that informally accompanies this chapter and can be found in the thesis appendix. The chapter begins with a brief recap on the suitability of a praxiographic approach for analysing what Lindström and Ståhl term the 'aftermath' of design (2020), in this instance, the police BWC. Three sections then make up the bulk of the chapter. Each of these discuss how the BWC connects with policing at a different scale or intimacy: police bodies, other police devices, and police culture.[2] The chapter closes by drawing some overall conclusions and with a discussion of how, despite these various different enactments, the BWC 'hangs together' (Mol, 2002).

Before continuing, it is important that some background details regarding the nature of the specific 'call-out' are given. The incident took place at around 7:30 pm in mid-October 2019. The two officers and I were dispatched to a property in the town's suburbs following a 999 call that alleged that a man had been seen in his front garden, holding kitchen knives, threatening to kill himself, and possibly displaying threatening behaviour towards his partner. Given the risks and potential volatility of the situation the dispatcher had asked if units with TASER were available. As the closest TASER equipped unit (one of the two officers I was with was TASER trained) we were dispatched to the job. When we arrived at the property the front door was open, the hall light was on, and the man could be seen inside holding two large kitchen knives. He was barefoot and topless, wearing only a pair of jeans. There were several grazes visible on his chest, he was sweating heavily, shouting incoherently, and clearly distressed. Like many of the call outs we had attended it appeared that he was going through a mental health crisis. I will describe more of the incident in below.

6.2 – Doing Praxiography in the Aftermath of Design

In Chapter Four, I noted that although ethnography has been widely adopted in design research, it is often applied instrumentally and without a full grasp of its reflexive, analytic, and theoretical foundations (Dourish, 2006; Ward, 2015). With this in mind, and remembering ANTs empirical attention to nonhuman actors (Law, 2004), I suggested that, following Mol (2002), we might think about studying the BWC praxiographically. This is a shift from studying people (ethnos) towards studying practices, and can be seen as being 'post-ANT' (Michael, 2016). Drawing on these ideas, this chapter considers the *practice* of BWCs by officers in Fritton. Previously I have suggested that this thesis is concerned with what Lindström and Ståhl term the 'aftermath of design' (2020). In their paper, they discuss two case studies that combine participatory and speculative design approaches to invite participants to engage in a process of 'un/making [...] harmful relationships' (2020, p. 12) (specifically around the topic of soil pollution). In their paper the harmful relationship in the aftermath of previous makings, namely plastic waste, was, to a certain

[1] Recalling Barry's distinction between interactivity from a Foucauldian disciplinarity, it is important to note that despite making the case that the BWC is an interactive device, the purpose of this chapter is not to argue that a BWC cannot be used as a disciplinary device. In certain circumstances the wearer might certainly wish to enact the BWC in this way. Instead, the chapter has sought to argue that BWCs are not limited to disciplinary functions, and that any disciplinary functions coexist with other BWC functions.

[2] There are, of course, overlaps and threads which run through all.

extent, already identified. This chapter is likewise concerned with this notion of design's aftermath. In the case of the BWC however, the aftermath of design (harmful or otherwise) is less certain; we don't know about the various ways the BWC might be enacted by its users. A praxiographic approach offers us a way to understand and consider the BWCs aftermath within a specific setting. Mol followed a disease, atherosclerosis, into and out of Hospital Z and its various wings. In this chapter, I describe following a BWC into and out of a police car, people's houses, and the streets of Fritton.

6.3 – BWCs & Police Bodies

Despite being a powerful body, in that they have powers ordinary citizens do not, I was surprised how frequently the theme of vulnerability came up in conversations with the officers I was observing. In recent years the number of reported attacks on police officers has risen (*The Telegraph*, 2018). This is despite a decrease in overall numbers of police officers, and the now widespread use of BWCs (a device argued to reduce violence towards officers). In the summer prior to my visit (August, 2019), a police officer, Andrew Harper, was killed whist on duty (*The Guardian*, 2019a).[3] Although not always discussed openly, it was evident that the officers I was with were acutely aware of the potential risks they faced. This was especially evident in how they discussed the fear of hearing another officer in trouble or distress over the radio. In connection to this vulnerability, officers described the world as chaotic, dirty, and on the brink of collapse, and they positioned themselves (as police officers) as being both slightly removed from it, but also critically, from the people that held it together. Similar ideas have been discussed elsewhere (Crank, 2004; De Camargo, 2019; Van Maanen, 1974). This conception of the world was not only apparent in conversations with officers but also appeared to be reflected in some of the officers' habits and practices. Two instances are revealing in this regard. The first took place during a night shift in town when a group of drunken men approached wanting to shake hands. Without too much thought, I accepted the handshake (the officers all declined). Immediately after the men had left, I was passed hand sanitiser and given the advice that shaking hands was a bad idea: "fist bumps are cleaner". De Camargo similarly notes the use of hand sanitiser in ritualistic 'purification rituals' (2019). The second instance involved me getting into the police car and sitting behind the front passenger seat rather than behind the driver's seat (for safety reasons, suspects do not sit behind the driver). Before I had time to buckle my seatbelt, I was told in no uncertain terms that: "you don't want to sit there, mate. That's where the crim's sit". Despite my not posing a threat, the officer was quite insistent that I moved, almost suggesting that I would become tarnished if I sat there for too long.[4] In both of these examples, objects (hand sanitiser, and the car seat) become devices by which the police can protect themselves (perhaps even if only psychologically) from the dirt and danger of police work. They become technologies by which a separation and a distinction between the police and the public can be established and maintained. Like De Camargo, Crank discusses how '[p]otential danger shapes police work, converting daily activity into a craft of identifying threats to public and officer safety' (2004, p. 160). How does the BWC fit into the dynamic of risk, and the 'craft' of police work that Crank talks of? How does this device (which is attached to the officer's body and argued to protect them from abuse) relate to ideas of vulnerability or the potential risks they face?

[3] BWCs might play a role in this increase. Officers wearing BWCs now have evidence of attacks and as such feel more empowered to report them.

[4] For the remainder of the visit, I was careful not to upset the spatial politics of the police car in such a way.

During my visits, when I questioned officers about their relationship with their BWCs, a number of officers talked about how they had "saved their ass". This was an intriguing remark and one which on the face of it seems very much to fit with the idea of danger discussed above. That said, few of the people I observed the police engaging with seemed to notice that the officers were even wearing BWCs, (this was especially the case in the more volatile incidents). I asked a number of officers about this, and they replied saying that in some cases people notice the BWC and change their behaviour, but also that "if someone's going to try it on, it's often because they're out of it" and in those circumstances "they don't notice the camera anyway". Over the course of my visits, I began to develop a better idea of what this 'ass saving' remark meant. I realised that it was less concerned with physical safety but rather with the officers' reputation, their professional security, and resultingly, their emotional wellbeing. Despite being attached to the body, the BWC seemed to me to be more connected to the mind and the ways that the officers thought. One conversation was particularity enlightening. The conversation involved one of the officers discussing a complaint that they were in the process of being investigated for. The incident that had prompted the complaint had involved use-of-force to arrest a suspect, who had been reported by a member of the public for carrying a knife. The suspect, who was later found to be carrying a garden trowel, felt the officer's use-of-force was excessive. Despite it being widely acknowledged by colleagues and the sergeant that the officer in question had acted appropriately, and even that the complaint might have even been submitted in revenge, it was clearly causing the officer a certain amount of stress. The officer frequently brought the complaint up with colleagues and described it as feeling like it was "hanging over" them. When brought up in conversation with other officers, the individual's BWC was frequently discussed "you had your body-cam on right?". The officer did. "Ahh you'll be fine". Without the BWC, and the footage it produced, the officer said they would have felt much more worried about the investigation of the complaint. As will be discussed more below, BWC footage plays a key role in legitimising instances of use-of-force, for instance TASER.

The power of citizen-produced images was noted in Chapter Two, along with a discussion of what Thompson refers to as 'The New Visibility' (2005). Later, in Chapter Three, the concept of the new visibility was discussed with explicit refence to policing (Goldsmith, 2010), and the example of Ian Tomlinson's death was given as a turning point that showed the power of mediated, citizen-produced media for holding the police to account. BWCs have become part of this dynamic. Within the conditions of the new visibility, BWCs function as a way for the police to control the narrative, if not the facts. Ben Brucato notes that BWCs give police immediate access to footage of controversial events and that 'multiple levels of gate-keeping' (2015, p. 466) mean that public access to BWC footage is extremely limited.[5] The ability to quickly review footage, Brucato argues, provides officers with the opportunity to produce 'narrative accounts' that explain controversial events 'within the language of department policy, as well as civil and criminal laws' (2015, p. 464). As has been previously established, complaints are costly for the police organisations, requiring the redirection of staffing resources to investigate, and frequently, the removal of officers from 'front line' work, while investigations are undertaken. At a more individual level, complaints are stressful for officers, putting their careers in jeopardy. Drawing on Brucato's points and keeping in mind the way officers talked about BWCs in Fritton, the picture we get is that BWCs are able to protect against a different set of risks, aside from just physical harms. Within the conditions of the new visibility described by Thompson and

[5] It is worth noting that Brucato is writing in a North American context, that said, his observations are equally valid for police forces in England and Wales.

Goldsmith, BWCs provide officers with confidence that, on the one hand, they will not be falsely accused of wrongdoing, and on the other, a way to make sense of, and explain, the more contentious encounters. BWCs offer a form of professional and reputational security to officers. In the case of the incident involving the trowel, described above, it appears that the officer had behaved appropriately, having said that, BWC footage was clearly important, likely speeding up the complaints procedure and meaning that it 'hung over' them for less time. In instances where officer behaviour is on the edges of acceptability BWC footage might be used to 'neutralise criticism and complaints' (Brucato, 2015, p. 465), even when these might be potentially justified and valid.

How does this idea of professional and reputational security intersect with the police body and Barry's ideas of interactivity? And how is a BWC enacted to provide professional and reputational security? To help discuss this, it is worth a brief mention of a much more deeply established technology within policing, police radios. Police radios are central to police work, and during my visits they appeared to have profound implications for how officers perceived and experienced space (and risks).[6] The officers I observed had an almost symbiotic relationship with their radios, at times integrating them quite literally into their bodies (some officers wore an earpiece so that they could hear the radio talk-group more clearly). I discussed with officers how they had adapted to the technology, "you get good at doing a few things at the same time, you just learn to listen for certain things and filter out the rest". During the visits, officers would move so seamlessly between conversations happening in person and via the radio that it was often confusing to know who they were talking to. Radios provided officers with live information about an area, and in doing so transformed their perception of their immediate environment.[7] On one occasion, when sitting in the police car looking out at the town, the officer pointed to where specific incidents they could hear on the radio were taking place. Radios are important to the officers' perceptions of safety. When officer safety was raised, officers often showed me a red button on the top of the radio. The red button, if pressed, alerts all other officers (via their own radios) that a colleague is in danger; "we drop everything if we hear that", one officer told me. More generally, I got a sense that being connected to a group of other officers and police staff via their radios gave the officers a feeling of security and camaraderie, one officer describing it, "it's like you're always in a big room full of other people. I feel like I'm with them every shift". The officer described how they had a 'work friend', who despatched calls, that they had maybe only met in the flesh once or twice. Radios allowed connection despite remoteness, they distort an officer's perception of space, folding space in on itself. Recalling Haraway's conception of the cyborg (2016), discussed in Chapter Two, the police radio is an interesting example of the intertwining of technological and human capacities.

If radios fold space, then BWCs fold time. The footage generated when a BWC is recording means that actions can be replayed and viewed again later. As noted above, this means that narrative accounts of controversial incidents can be produced, and it also means that sometimes poor or unflattering behaviour is being recorded (Crisp and Dodd, 2020). I certainly got the impression that when BWCs were recording, officers were conscious of how behaviour, and remarks, might appear in a different context. This fits with the notion, discussed in the introduction,

[6] Chapter Three discussed the advent of police radios in the 1960s. BWCs, in comparison, are still a relatively novel addition to policing and it is fair to say that their integration into the day-to-day experiences of police, the organisational culture, and the management of police is not yet fully borne out. This is not to say that BWCs have not profoundly changed the nature of police work, one of the aims of this chapter is to show how this is the case, but rather to note that the full implications of these changes are less developed.

[7] Thought of like this, radios, like hand sanitiser and the police car, can be thought of as another technology which makes the police different from the public.

that BWCs deter poor behaviours. Certainly, it is likely that BWCs do deter and prevent malpractice and poor conduct more generally, however, deterrence seems to be a too simplistic an explanation of how I saw BWCs being used. Instead, what seemed to be the case was that officers had begun to think *through* and *with* the technology, manipulating their behaviour in real time accordingly. The acknowledgment that a BWC could offer footage of a given circumstance seemingly allowed officers the option of a different experience of the present. Some officers said that they used the camera as a memory aid, for instance, intentionally recording certain details of a space or situation (evidence of damage, or a road sign with information, for example) so that they could focus more on the present.[8] Subsequently BWCs can be thought of as a good example of an interactive technology, as described by Barry (2001); a technology which 'channels and excites the curiosity if the body and its senses resulting in anticipated effects of the intellectual productivity, questioning and creativity of these who interact' (2001, p. 149). BWCs provide a new temporal framework to the day-to-day work of policing. Unlike radios, BWCs are still relatively novel, as such, the potential implications of policing's new temporality are only beginning to be understood. The following two sections are informed by this idea.

6.4 – BWCs & TASER

This section considers the relationship between BWCs and another police technology, TASER. As noted in the introduction to the thesis, the origins of BWCs can be traced back to TASER. Although the specific police force where I conducted my observations used BWCs manufactured by Reveal Media rather than Axon Enterprise, I was interested to see how, if at all, BWCs and TASER related to each other. In recent years of the number of officers in England and Wales who carry TASER, has risen quite dramatically and this trend looks likely to continue (Dearden, 2019; *The Guardian*, 2019b). It is hard to discuss TASER, its use by police officers in both Fritton, and throughout England and Wales, without mention of Conservative austerity policies. As noted in Chapter Four, the effects of austerity are keenly felt in Fritton. The town suffers high unemployment, drug and alcohol services have been cut, and there has been a reduction in the police budget. Throughout England and Wales, austerity has resulted in an increase in mental health related emergency calls (Campbell, 2020). A staggeringly proportion of the calls that I attended during my visits were concerned with mental health related call outs. The officers I spoke to in Fritton often pointed out that the jobs we were attending "shouldn't really be police work, but they've ended up our job". This chimes in many ways with Bittner's description of police work, as quoted in Chapter Three, as dealing with 'every kind of emergency' (2005, p. 150). Andrew Mille discusses the expansion of the policing role over the four decades prior to austerity, saying that through a process of mission creep 'definitions of crime control, social service and order maintenance [have been] stretched' (2013, p. 155). Austerity, Mille says, offered an opportunity to reassess 'what makes up the policing task' (2013, p. 155); to redistribute some of the workload of the police to more appropriate institutions and organisations. Suffice to say, this opportunity was not taken. Austerity has resulted in something of a perfect storm, with increased demand and a reduction in staffing levels; the police, both in Fritton and elsewhere, have been asked to do more with less and there are fewer officers spread over the same geographic area.

One way of maximising staffing resources is through the practice of 'single-crewing' (officers working alone). The Police Federation argue that single crewing puts officers' welfare at risk, and it has been noted that officers

[8] It is worth noting that officers also used camera phones for this kind of work.

perceive single-crewing to be more dangerous (Elliott-Davies *et al.*, 2016). I discussed the practice with officers. Although none of the officers admitted that they explicitly felt apprehensive as result of single-crewing, it seemed that, generally speaking, most of them preferred to be partnered. One officer I spoke to noted that when other units are tied up it can take a while for back-up to arrive if needed. TASER seemingly offers a way for police managers to protect officers from some of the implications of austerity (reduced staff numbers, risks involved with single crewing, and increasing attacks on officers) and a relationship between TASER and an increase in officer perceptions of safety is noted, both by the chair of the Police Federation (Police Federation, 2019), and by the Chief Constable of Northamptonshire police, Nick Adderley; the first to announce the roll out of TASER to all of Northamptonshire's front line officers (Sheldrick, 2021).[9] Adderley describes TASER as a 'safe, effective and vital' tool, saying he wants to give them to his officers so that they have 'the confidence to go after the baddest people causing the most misery and get the job done, professionally and safely' (Sheldrick, 2021). The officers that I spoke to in Fritton similarly discussed TASER as being safe, and noted that being 'TASERed', whilst far from pleasant, it was more desirable and 'humane' than the alternative of PAVA spray (an incapacitant spray similar to pepper spray). Despite such claims, TASER clearly amounts to quite extreme force, and their use has been a contributing factor in a number of deaths (Dearden, 2020). It is unsurprising that TASER use is highly controversial (Amnesty International, 2004), and has the potential to generate complaints. BWCs, as noted previously, have become a key tool for dealing with complaints efficiently. BWCs, therefore, play a central role in the process of legitimising and justifying TASER use.

The particular call out mentioned in the introduction to this chapter involved both TASER use and a mental health crisis. This incident can help to explain the role BWCs play in legitimising TASER (at both a personal and an organisational level), and further highlights the connection between TASER, BWCs, and austerity. As has been established, the call out involved a man in the middle of a severe mental episode crisis. Through subsequent conversations with his partner, it was established that he had been suffering for some years with poor mental health, however, following an issue at work, the situation had deteriorated rapidly and on the day of the incident he had decided to 'self-medicate' with alcohol. Holding knives and incoherent, the man presented a risk to himself, his partner, and the officers in attendance. When requests were made for him to drop the knives he refused, and it was only when TASER was drawn and he was 'red dotted' (the final stage of TASER deployment before the device is 'sparked') that he was willing to give up the knives, that he was then able to be restrained. In this specific instance, TASER made the situation less volatile and likely safer for all involved.[10] I asked the officers what would have likely happened in the absence of TASER. They predicted that it could have "gone on for hours" and would have been a stand-off. When back at the station, I talked with officers both about TASER, and about the relationship between TASER and BWCs. All the officers seemed to recognise that TASER was a controversial issue, and to a certain extent, I got the impression that many expected I might be critical of its use.[11] All of the officers recognised that TASER was a last resort, and that full deployment (i.e., firing the device) was at the outer limits of the force they

[9] According to one study, 96 percent of officers report feeling safer. (Sheldrick, 2021).

[10] The incident changed my views on the use of TASER devices. Prior to this incident I would have said that TASER had no place in policing in England and Wales. This incident problematised this view. In a wholly imperfect situation, use of this highly controversial device, I feel, was correct.

[11] In many respects, these expectations were valid. I was, and still am, uneasy about TASER use. That said, after shadowing the officers, my views in relation to the TASER has become more nuanced, as I hope this section reflects.

could use.[12] TASER was nonetheless discussed as 'necessary' given the extremity of what they had to deal with and the risks they faced. Nonetheless, officers were overwhelmingly supportive of their use.[13] Interestingly, TASER, unlike the BWC, *was* generally discussed in terms of its deterrent effect. The officers recalled the incident noting how the device had expedited the arrest and "made it safer". Anecdotally, in other instances the mere presence of TASER (highly visible due to its placement on officers' vests, bright yellow colour, and overt TASER branding) was suggested to be enough to calm situations and mean that use-of-force was not required. This was neatly highlighted in an exchange one evening with an officer who, pointing to the TASER pouch on his vest, asked me what I thought was in it. I replied awkwardly that given the branding I suspected it contained TASER. He smirked and pulled open the pouch to reveal that it was empty. The officer, who had been in the job a long time (over ten years), explained that they didn't want to carry TASER, but that if people wanted to *think* they did, that was fine by them. They even joked that they sometimes kept a banana in the pouch. Though I can't be sure that this officer wasn't joking, the exchange nonetheless reveals something interesting about the officer's perception of TASER as a deterrent, shedding light on why officers might be keen to carry one.

BWCs and TASER were described by a number of officers as being a 'package', with BWCs being a prerequisite for the deployment of TASER. It was suggested that there would be serious questions asked by superiors if the BWCs hadn't been used when deploying the device. Considered in this way, BWCs are (or at least are framed as) a device which makes TASER legitimate; a device which means that officers can be held accountable by the organisation for their deployment of TASER. Relatedly, at a more individual level, BWC footage provides officers with the confidence to use TASER without risking their career. BWCs are a way for them to explain that TASER use was 'justified' and 'proportionate' and to avoid the potential negative implications of complaints. As one officer put it to me, "it's about showing that it was reasonable, even if the final outcome might not be ideal". This process of legitimatisation is also evident in how BWCs appeared to be used in the writing up of the incident where TASER was used. With regards to the incident described above, the footage was central to completing the necessary paperwork. After the arrest, and once the man had been taken into custody, the officers I was shadowing returned to the station, found a desk, and plugged in their laptops and BWCs. Between the two officers they established what paperwork would be required and, working as a team, began to systematically work through it. Using their laptop and a separate, larger monitor, the footage was a key tool in the completion of this paperwork. Officers would scrub through footage, often pausing it at specific moments in order to make a record of a specific time or detail.[14] According to a number of the officers I spoke with, writing statements in this way not only presented considerable timesaving but also improved, in their view, the accuracy and detail of the statements. The potential efficiency benefits of BWCs have been noted elsewhere (Ellis *et al.*, 2015; Grossmith *et al.*, 2015), although generally with few details as to how such efficiency will practically be achieved. This use of BWC footage is a novel, inventive, and largely underexamined way in which BWCs are being used in day-to-day police work. With this in mind and

[12] Some, for instance Deborah Coles, director of *Inquest*, a charity which investigates contentious deaths, claim that TASER are increasingly 'a first not last resort' (Dearden, 2020).

[13] This support for TASER is also evidenced by the waiting list for training, which was hugely over-subscribed at the time of my visit (to carry TASER devices officers must pass a specialist training course).

[14] It was striking how little infrastructure there was for this kind of media work. Officers seemed to be using their own headphones so that they could hear the footage, and simple pieces of equipment, such as computer mice for instance, would have made this work much easier.

considering Brucato's points, mentioned in the previous section, it is interesting (and perhaps concerning) how central a role BWC footage plays in the completion of paperwork, especially when concerning controversial technologies such as TASER.

As the above shows, BWCs not only make use of TASER possible but also inform how such use is explained and documented. Although now detached from the TASER device, it would appear that BWCs and TASER still have a remarkably close relationship. Indeed, it is hard to imagine the roll out of TASER without the presence of BWCs. Conceiving of BWCs and TASER as a 'package', as the officer puts it, echoes Barry's definition of technology as, '[a] method for achieving a given aim which includes the use of one or more devices, but also the knowledge and skills which make it possible for the devices to be used' (2001, p. 269). TASER and BWCs present police with a new model for doing police work. Much like how the police radio and the motorcar made unit beat policing possible. TASER and BWCs offer a way for police agencies to deal with some of the impacts of austerity, in particular, a reduction in staffing resources and an increase in attacks on officers, whilst within the conditions of the new visibility, as outlined by Thompson (2005).

6.4 – BWCs & Police Culture

This section considers the relationship between BWCs and police culture. Considering that this thesis draws on ANT, some clarification is required as to what is meant when we speak of culture. As Elaine Campbell points out, following Latour (and ANT) we can '[question] the notion of 'culture' as a specific domain which can be distinguished and isolated' (2021, p. 46). This idea, Campbell suggests, is at odds, in many respects, with a whole body of police scholarship of which police culture has been a key concern, (for instance, Holdaway, 1983; Punch, 1979; Skolnick, 1966). Instead, 'ANT configures 'culture' as one outcome, amongst many, of networks of practices' (Campbell, 2021, p. 46). Following ANT, Campbell argues, police culture might be thought of, not as an entity in and of itself, but instead, as something that is produced; 'not a property of humans but an association of actors' (2021, p. 48). Seen from this perspective 'policing is a crowded, fluid and eclectic field of action in which all entities, human and nonhuman, are lively and agential, forming connections and alliances which can make things happen' (2021, p. 48). These ideas inform the following section.

As noted, much has been written about the organisational culture of the police, both in terms of how it is established and maintained, and some of its defining characteristics (Van Maanen, 1974; Holdaway, 1983; Waddington, 1999; Crank, 2004; Skolnick, 2008; Reiner, 2010). Drawing on Skolnick (1966), Reiner outlines a number of key characteristics of police culture, namely, a feeling of mission, a sense of suspicion, isolation and solidarity, conservatism, machismo, racial prejudice, and pragmatism (2010).[15] These, he notes, should be considered in relation against two conditions of the police role: danger and authority. Holdaway echoes some of these ideas and observes something of a paradox in the way that officers view police work, noting that despite an emphasis on crime, police work is predominantly made up of order maintenance (1983) (this was touched on in more detail in Chapter Three). Holdaway highlights how both cars and radios are used to 'maximise excitement', noting how 'the technology of routine police work is reworked to create an experience which the officers define as typical and important' (1983, p. 55). Returning to Campbell, we can think of both cars and radios as key actors within this

[15] Following Campbell, it is worth considering the role that objects, a police uniform for instance, play in reinforcing and maintaining these characteristics.

actor-network. I also observed that officers use cars and radios as a way to maximise excitement, and similarly an emphasis on crime and crime fighting. One of the officers said, "I like it when we're *really* busy, and we go from job, to job, to job, *that* to me feels like policing". Considering, as discussed above, that BWCs appear to offer policing a new temporal framework, I was interested as to how the technology might also be used to maximise excitement, and the role it might play in producing a new kind of workplace culture.

As touched on in the previous section, while shadowing officers in Fritton, I noticed that a great deal of their time was spent completing paperwork and other administrative tasks. This was done during what the officers called 'downtime' (periods between 999 calls or other more exciting work). These administrative tasks were completed on laptops, either in the response car, or, for incidents which had created a higher volume of paperwork (the incident described above for instance), at one of the 'hot-desks' with a large screen monitor, back in the station. Written statements were a big part of this work and took up a large proportion of officers' time. The accuracy of statements, one officer reminded me, could mean the difference between successful prosecution or not, so, as one officer put it, "it's vital that information and details are recoded right".[16] As mentioned in the previous section, it was common to see officers reviewing BWC footage as they wrote statements. In addition to being used to improve the accuracy of statements and the officers' productivity, reviewing footage in the way described above also seemingly served other functions. For example, the footage seemed to offer a way for officers to remind themselves of what *real* police work consisted of. In an open-plan office space such as the one found in Fritton, BWC footage on monitors was visible to others in the vicinity. On a number of occasions I saw officers break from their own paperwork to gather round and watch another officers BWC footage. This took place following the incident described above. The below describes the various things that appeared to be taking place during this collective reviewing of footage.

As mentioned previously, following the arrest, the officers returned to the station and began completing the necessary paperwork, using their laptops, large monitors and the BWC footage to do so. Given the excitement of the incident (the fact there were knives and the threatening behaviour towards the man's partner), many of the other officers on the shift had listened to it on their radios.[17] These officers were keen to hear (and see) more about the details. The two officers I was with were quick to recall and describe the event to their colleagues, with a fair amount of narrative dexterity, it must be added. Interestingly, the BWC footage (and screens) was central to how these stories were delivered. Officers located the moment they entered the property in the footage and showed this on the screen, using it to explain the incident. Before long a small group of officers had gathered around the desk to watch. The footage was played a number of times and paused at key moments. The officer telling the story, aware that footage from the perspective of their colleague who had made the arrest, and who had drawn their TASER, would show more of the drama, was quick to ask for specific moments to be brought up on the screen. These then acted as prompts for the story and evidenced some of the points being made. The moment that the TASER 'red-dot' became visible on the man's chest, the subsequent response from the man's partner, and the way in which the officer with the TASER said "whoaaaa" in response, attracted much attention from the group. Similarly, the size of the kitchen knives, the availability of other knives in the kitchen, and the apparent volatility of the man were also

[16] Recalling the previous section, and following Brucato (2015), what constitutes 'right' in such instances is, in many ways, open to debate.

[17] As noted, officers were particularly attuned to listening for anything on their radios which might put one of their colleagues at risk of physical harm, so would frequently shift their attention to make sure that a colleague was safe.

things which were also discussed.

This informal footage reviewing session was brief, lasting all of a few minutes. Despite its brevity, a number of important things appeared to be taking place simultaneously. Firstly, the footage appeared to function as a way to 'import' the drama, speed, and excitement which the offers take to be core to their role, into the police station. Returning to the paradox highlighted by Holdaway, administrative work is in many respects at odds with common place conceptions of what police work consists of. The footage, much like how Holdaway talks of radios and police cars being 'reworked' to 'maximise excitement', appeared to be a way for officers to remind themselves of what they're *really* there to do; an antidote to the paperwork which prevented them from the real police work of 'fighting crime'. Holdaway also talks about the role police stories and 'folk-narratives' play in forging and defining conceptions of policing 'as *the* practical, common sense way of working' (1983, p. 139, emphasis in original). The parallels between radios, police cars, and the BWC in the construction and maintenance of these folk-narratives are striking. Secondly, the footage acted as a way for the officers to establish and agree on the correct procedure. For instance, a number of the officers viewed the footage and assessed it in terms of risks and assessed how these were mitigated by the officers. Many of the other officers, including the sergeant, congratulated their colleagues on their performance, bravery, and cool headedness during the incident. Third, and perhaps as an antidote to the potential risks, it functioned as a way of having a laugh. The officers teased their colleague for the way they said 'whoa', for instance, and at the fact the man wet himself after being arrested. I understood this as a way to diffuse the situation, and as a way to shift the focus away from the risks which the officers faced, towards something more light-hearted.

This example shows a specific way that the BWC was enacted by officers inside the police station in Fritton. It shows the interactive use of BWCs, used, in this instance, to support and maintain some of the cultural logics of policing. BWCs capacity to 'fold time' and offer a new temporal framework to policing, offer officers a way to import drama and excitement into situations which feel at odds with their conceptions of what police work consist of. Returning again to Campbell, BWCs it would appear, are key actors in how police culture is produced and maintained. BWCs, and the footage they produce, are also used to shape ideas of what 'good' police work consist of, for instance, the officers commenting on potential risks and how to spot them, perhaps even pointing to how decisions around use-of-force are justified by officers and their peers. Perhaps unsurprisingly, this was most overt in a comment from the sergeant, who reassured the officer that the use of TASER was justified.[18]

6.6 – Conclusion

This chapter has shown that the BWC is an interactive device; something which extends, rather than limits, the capacities of the wearer. Central to this interactivity is the BWCs ability to offer policing a new temporal framework. BWCs invite creative use, and officers have quickly incorporated the technology into many aspects of their day-to-day work, some of which, for instance, for entertainment use, or for sustaining police culture, have been largely overlooked in the literature. In Fritton, I observed BWCs being enacted in multiple ways, each intersecting with policing at a different scale or intimacy.[19] The first section discussed the relationship between BWCs and police bodies. Within the conditions of the new visibility as outlined by Thompson (2005), officers are expressly aware that what happens in the here and now can be rewound and played back. BWCs add, and are solutions to, such

[18] The potential for BWCs to be used for officer training has been noted elsewhere (Phelps *et al.*, 2016).
[19] Following Mol, we might say that there is not one singular, but rather, multiple BWCs, even within the context of Fritton.

conditions because of their ability to provide a new temporal framework to policing, allowing officers a means by which they can review their actions. Due to existing and deep-rooted imbalances of power the ability, to do this seems to largely to benefit the police, something noted by Brucato (2015). BWCs provide police officers with a new kind of reputational and professional security to the wearer; a way of combating and neutralising complaints and the anxiety and stress they bring. The second section explored how BWCs relate to another police device, specifically TASER. TASER is argued as a technology used to protect officers in response to increasing number of attacks. A controversial device, TASER also has the potential to cause complaints. BWCs help legitimise TASER use, and arguably, combine to make a new model of policing possible. Without BWCs, TASER would likely be unviable. Finally, the relationship between BWCs and police culture was discussed. The collective viewing of BWC footage in the station appears to offer a new way for officers to come together, discuss their work, and make sense of it. But this is also a way to 'import' speed and excitement into situations which were at odds with officers' conceptions of what 'real' policing consisted off. BWCs it would appear to have become key actors in the production and maintenance of police culture.

As has been noted, there is considerable overlap between the three different enactments of the BWC. Following Mol, we might say that they are coordinated and 'hang together' (2002, p. 55). This is to say, that each of these separate logics of the BWC coexist happily; even support each other. One of the things which ties these different enactments, different BWCs, together, are the conditions and effects of austerity. Policing in post-austerity England and Wales has resulted in a number of challenges for police agencies. An increase in demand as a result of the decimation of local social services, compounded by reduction in staffing levels, is perhaps the biggest to overcome. This has exacerbated some of the risks that officers face, and arguably, has resulted in an increase in attacks on them. Technology has been used by police agencies as a way to attempt to mitigate some of the impacts of austerity and new visibility. Barry notes that '[p]olitics does not circulate *just* through the flow of ideologies or rationalities of governments, but through diagrams, instruments and practices [...] the use of interactive devices, political doctrine can be rendered into technical form.' (2001, p. 151 emphasis added). Following this, we might perhaps think of the BWC (and TASER), and all of its inventive uses, as a product of the austerity and its effects.

Anecdote: Taking

In the back of the response car, I opened my backpack and found the small cardboard box which had previously contained brunch-bars. I straightened some of the cables, turned it on and pulled out my homemade BWC. Taking one look at the device, this bundle of wires and flashing LEDs, the officers turned to each other with wide eyes. It hadn't occurred to me my homemade BWC might look like a bomb.

We had just left the communications room – the central hub where 999 calls are taken – which officers were keen to show me, and which they had needed to get special authorisation for us to visit. The building also housed the offices of various senior police officers. Their "boss's-boss's-boss" had been pointed out to me from across the atrium, and both of the officers were on best behaviour. "Thank god you didn't get that out in there, mate" said one. "Imagine – there'd have been an ARV in no time, and the place might have been put into lockdown!" said the other.[20]

This *really* wasn't what I'd hoped for. Back in my office at the university the device had so clearly been a BWC, albeit a slightly different one. When colleagues had seen the components, they'd even joked that I was *finally* making the camera. But here, taken out of a backpack in the back of a police car, a stone's throw away from one of the most important buildings belonging to the force, it took on a completely different appearance. After I apologised profusely and reassured them that it wasn't a bomb, I explained how I made the camera and some of the themes and ideas that making it raised. This device started some interesting conversations, though not exactly the ones that I had envisaged.

[20] Armed Response Vehicle

Chapter 7
Books, Buttons & Alternative Futures

7.1 – Introduction

Chapter Five discussed how a range of making activities were used to investigate, and 'get inside' the police BWC. In the chapter, I argued that making offered a unique way of being with the technology, a way of getting in amongst material, and, following Nold (2018), a way to stack ontologies. This chapter returns to the outcomes of the making activities discussed in that previous section, and describes their use with police officers in Fritton. Each of these outcomes, which from now on I will refer to as 'research technologies', respond to, and deal with, different issues relating to the various worlds of BWCs. The book, for instance, explores police visibility, whereas the scripts connect with media portrayals of the police. Prior to conducting the field research, I considered how to present each of the different research technologies to the officers I was due to meet. I thought about the ideas that each would introduce, and the sorts of conversations they might engender. Collectively, what these research technologies have in common was the aim that they might to prompt 'inventive problem making' (Michael, 2012b), and become tools by which I might unsettle, or raise questions about, the BWCs that the officers would be wearing; I wanted them to be provocative and to prompt unexpected conversations. All the research technologies described in this chapter were used with police officers during the fieldwork visits to Fritton (the details of which were discussed in Chapter Four), and their use was concurrent with the observational research I was conducting (the empirical findings of which were discussed in the previous chapter).

This chapter is structured as follows. First, it begins by drawing some connections between the use of research devices and ethnography. Although both have been mentioned previously, some specific detail regarding their intersections, and how they were used in this instance, is important for framing the three sections that follow. The first of these discusses the use of the small, neon-yellow book that was produced to visualise police visibility. This section talks about how the book functioned largely as intended: to introduce specific ideas about the history of police visibility with officers. But it is also about some of the other, less expected, things that the book did; the other ways, recalling de Laet and Mol (2000), that it worked. Many of which I had not anticipated. The second section describes showing the alternative BWCs. This section considers how a three-dimensional render of a BWC (with an additional and undefined button) might function as an invitation to speculate, or 'do design'. It suggests that an undefined button might act as a speculative proposition, opening up ways for officers to talk about their thoughts, predictions, and hopes about their own BWCs. The final section discusses attempts to engage with officers using the various semi-fictional scripts I had produced. The section considers what failure means when using such research technologies. What can be found out when things don't go to plan, and should such instances be regarded as failures at all? Space limitations mean that not all the outcomes described in Chapter Five are discussed. Instead, I focus on those which were most productive, and/or, that failed most spectacularly. The chapter ends by drawing some connections between points made in the previous sections.

7.2 – Doing Inventive Problem Making

Design probes, as noted in Chapter Four, are argued as having the potential to prompt 'inventive problem making' (Michael, 2012b). In this section I will highlight some of the similarities and differences between design probes and the research technologies that I produced, and I will give some detail to how inventive problem making was achieved in this project. I will also discuss some of the connections between this kind of interventionist approach and ethnography.

Boehner *et al.* note that probes are sometimes used 'as a supplement to social science or ethnographic approaches' (2007, p. 1079). They also highlight Dourish's (2006) criticism that probes are a poor substitute for ethnographic inquiry (a fair criticism if probes are misapplied, or if they are judged in the same terms as ethnography). Further, Boehner *et al.* point out that probes are frequently used in ways which 'lack the epistemic grounding that make their results truly meaningful' (2007, p. 1084).[1] Nonetheless, they note that 'the relationship between probes and ethnography is closer than might be imagined' (2007, p. 1083). Partly, this is because probes, like ethnography, are about interpretation. Probes, Gaver *et al.* note, are designed to spark design inspiration rather than to provide testable data. The responses they produce function in relation to the design team's own experiences, allowing for empathetic rather than intellectual understandings to be formed (2004). Both probes, and my research technologies, use material things as a way to do research. Significantly, recalling the assertation of Marres *et al.* (2018), that research is always already an intervention, both probes and the research technologies take advantage of the fact that the social world is not out there waiting to be discovered but is, instead, actively produced. Part of the strength of probes is that they are uncertain; probes are 'purposely uncontrolled and uncontrollable' (Gaver *et al.*, 2004). To a certain extent this is also true of the research technologies that I produced. Both are open ended and aim to provoke responses from participants in relation to a particular area of interest, rather than necessarily provide provable answers. In terms of inventive problem making – which Michael, referencing Miriam Fraser (2008), describes as the process of transforming and opening up of research questions to 'new, unforeseen problematics' (Michael, 2016, p. 135) – both probes and research technologies achieve this in slightly different ways.[2] In the case of probes, responses from the probe packages (photographs, notes, sketches, etc.) are returned to the design studio to be used as inspiration and to build an idea of participants, which can inform the design process or future designs (Gaver *et al.*, 2004). In the case of the research technologies, they, and the knowledge produced thorough their use, both exist in their own right.

As noted above, I used the research technologies in conjunction with observational research. The reasons for this were numerous. Primarily, I was inspired by the idea that research might take place across multiple sites (Marcus, 1995), and the notion of the BWC being multiple (Mol, 2002). If, following Mol (2002), the BWC 'hangs together' and is 'coordinated', then part of what I was interested in doing with the research technologies was to intentionally shake it up. As touched on in Chapter Five, when arranging the visits with officers, I became interested as to how the various things I had been making might be used to collapse or fold the two sites of research (the making space and the observational space) in on one another. Another reason for using the research technologies during the observational research was informed by the 'inventive' approaches to research discussed by Marres *et al.*, as noted previously. Practically speaking, the research technologies punctuated the observational research with what might best be described as 'show-and-tells', during which, they were presented to the officers and discussed collectively. Broadly, these show-and-tells did three things. One, they helped me position myself as a designer and present the interests of my research. Two, they informed and directed the observational work (and its analysis). Three, they produced the data, which I will now discuss in the following sections.

[1] The authors are writing about the use of probes in the HCI community; however, their criticisms are undoubtedly true of design more broadly.

[2] It is worth noting that there are parallels between inventive problem making as described by Michael and Cross' description of designerly ways of knowing, for instance Cross' point about designers re-defining, and changing the problem-as-given.

7.3 – Books

Inspired by Becker's (1995) discussion of photographs as 'ways of telling about society' I produced a small, neon-yellow book. The book comprised images of police from the years 1829 to 2019, and was designed with the intention of being shown to officers as a way to introduce specific ideas from my research, namely the idea of police visibility and its relationship to technology. When describing the process of making the book in Chapter Five, I cited the work of Douglas Harper. In his book *Visual Sociology* (2012), Harper discusses the use of images as a way of *doing* social research, and suggests that images can be used to both communicate and tell about societies. Harper talks about 'visual ethnography', which, he says, 'is an effort to understand a culture by making it visible' (2012, p. 12). These ideas are certainly relevant in relation to the book I produced and how I used it, and they are a useful primer for what follows. But the book was not a visual ethnography. The book was not only concerned with 'telling about' (Becker, 2007) police culture and police visibility, but was a technology for picking at it. Harper also talks of Photo Elicitation (PE) as a way of doing research that uses images 'as a means to an end, rather than as an end in and of itself' (2012, p. 155). In simple terms, PE consists of a researcher producing an image and then talking about it with research participants. The basic idea, Harper notes, is 'collaboration: people using images in one of several ways to learn something together' (2012, p. 155). It is worth pointing out that there are clear similarities between PE, design probes, and the way in which I used the book.[3] Notably that they all centre around the idea of the researcher introducing the research participants to material and asking for them to respond. Indeed, the idea that PE can, as Harper notes, create 'a bridge across cultures; a window from one into another' (2012, p. 167), is something which could easily be said of probes.[4] Unlike PE however, which, generally speaking, focuses on a single photograph, the book that I produced contained nearly two hundred images. The juxtaposition of these images, both in terms of graphic layout, but also the more haphazard combinations – combinations which were created as several books (open on different pages) were being passed around – was important to how the book was read, and how it was intended to function. Of course, photographs were examined individually, but one of the aims of book was to draw similarities and differences between the different images, and to allow officers to choose how *they* wanted to engage with this body of visual material. The book was intended to present policing's history, albeit a particular version. Moreover, returning to Becker, who says that '[l]ike all cultural objects, photographs get meaning from their context' (2007, p. 192), I was interested in what it would mean to use the book to make visible the matter of police visibility during, and in relation to, the day-to-day activities of policing I would be observing. I wanted to know which images the officers in Fritton would find interesting, how they would interpret the collection, build connections, and how the images would relate to things I would be observing.

The book was the first of the research technologies that I showed the officers. On the afternoon of the first day, once I had been introduced to the team by the Inspector, had attended my first call, had 'refs' (police slang for refreshments), and all my initial questions had been answered, the two officers I was with turned to me and asked me about my research; it was my turn to answer some questions. Throughout the project, that labelling of the research as 'design research' had led to confusion as to the kinds of things that I would be interested in. This was

[3] Harper also discusses 'Photovoice', another way of using images as a way of doing research. Photovoice asks participants to produce their own images and therefore also has similarities with probes, and 'ProbeTools Cam' (Boucher *et al.*, 2016), a project by the same team, with a greater focus on photography.

[4] The sometimes unidirectional nature of the traffic via this bridge (or window) is, however, a source of criticism (Edwards, 2003).

one of those situations. As I tried to explain the project, and design research, to the two officers, I reached into my bag and pulled out the book. This was not something I had necessarily planned, but the images in the book provided me with a way of articulating why I was interested in the BWCs they were wearing, why design was relevant to policing, why objects mattered, and would explain some of the ways I was going about the research.

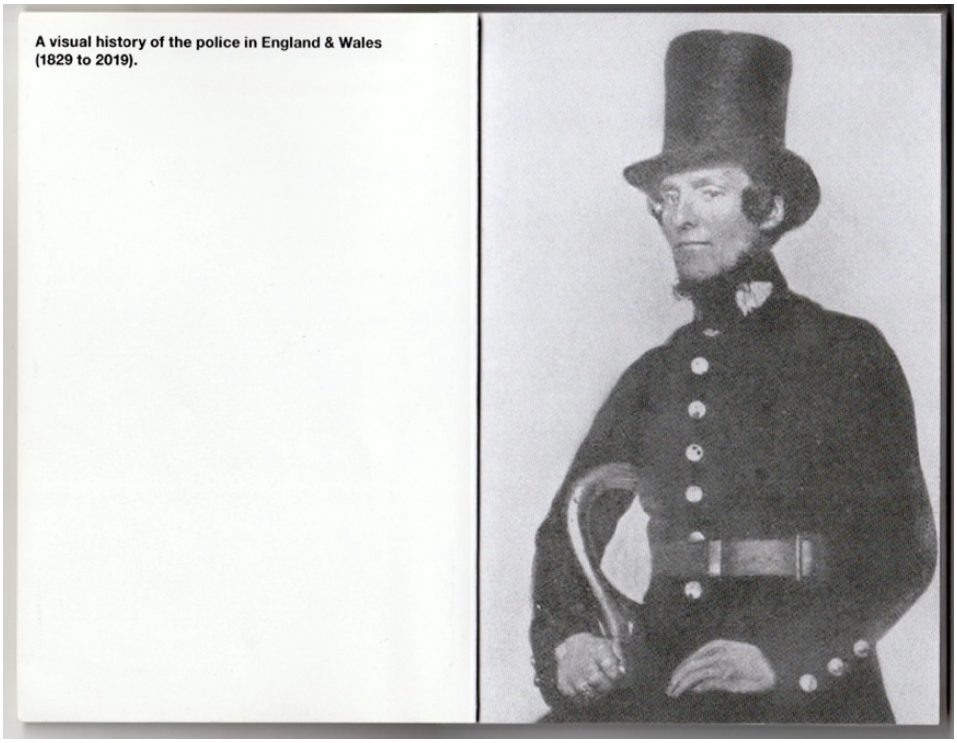


Fig. – 43 Page one of the book, showing an image of a Peeler in uniform.

I opened the book on the first page (see Fig. – 43) and described the design decisions involved in the Peeler's uniform. I explained why the collar on the tunic was so high and made of leather (to protect from strangulation), and discussed the relationship between uniform and safety, drawing comparisons to the stab vests that they were wearing. I noted how the Peeler's hat was apparently strong enough to stand on, and as a result could be used to see over walls.[5] I explained why the tunic was blue and not red, highlighting the political significance of this *design* decision. This short presentation was effective and did a number of things. As well as an opportunity to explain who I was and why I was there, it opened up a way of talking about design (both as a practice and in terms material things) as having implications; from an ANT perspective, that something like the Peeler's tunic was an important actor in the way that their authority and legitimacy was achieved. I handed each of the officers a copy of the book and said they could keep them if they wanted. The officers were excited by this, saying that they were keen to show their colleagues, and their friends and family. On returning to the station later that day, the officers were indeed quick to show colleagues, and I distributed a number of copies of the book to those who wanted one. As the officers flicked through the book, I explained how each page roughly corresponded to a year in the history of policing in England and Wales, and we talked about the changes that had taken place in that time. One officer (male in his early 20s) noted his disappointment that he wouldn't have any of the memorabilia that previous generations

[5] Whether or not the hats *were* strong enough to do this seems to be contested. If they were then this is certainly a good example of a different enactment of the hat.

had, "I won't have a whistle or metal buttons from a tunic to show my grandkids". This prompted a discussion about whether or not policing was a 'job for life'. Another officer (female in her early 30s), stopped on a page from the 1960s showing three women police officers holding their handbags (see Fig. – 44). We discussed the uniform that the women in the photograph were wearing, comparing it, and its practicality, to the trousers and fleece she was wearing. As we did so we searched for other images of women in the book, as points of reference. During this conversation about women's uniforms, a male officer talked of the importance of diversity and the benefit of having different people within the police. It is worth noting that his points focused primarily on the operational advantages that diversity presented, as opposed to whether or not this was a more democratic model, or how the public might perceive a more diverse police force. Returning to the image of the handbags, I noted how in the 1980s women officers were given so-called 'lady truncheons' (BBC, 2019), which, although small enough to fit into a handbag, were reportedly largely ineffectual. The female officer laughed at this anecdote, and pointed out that equipment is still designed with men and men's bodies in mind, gesturing to her stab vest.[6] Great, the book was prompting conversations about the significance of design.

Fig. – 44 Scan from book showing women police officers in the 1950s

A few days later, towards the end of the shift, whilst some of the officers were completing paperwork in the station, I flicked through the book over a cup of tea with two officers (both male and in their mid-30s). This time I let them look at the book and waited for them to respond. One of the first thing they mentioned was the changes in uniform. Looking at a page from the mid-1950s (see Fig. – 45), they compared the formal uniforms worn by the officers at the time, to their own uniforms. The officers joked about having to wear a tie and recalled their school days. Noting that the different forces in England and Wales each have subtly different uniforms, I asked them to talk me through the ones that they were wearing. The book was functioning as a tool for making sense of the

[6] It is worth highlighting here that women police officers have long raised this as an issue, see for instance, Young (1992).

environment. The officers began by talking about the practicality of the black, synthetic t-shirts they wore. These, they noted, made wearing a stab vest more comfortable (especially in hot weather), and meant that they could be washed and dried quickly, "they don't need to be ironed either", one noted, in reference to the shirts in the book. One of the officers joked that the colour of their t-shirts also meant that stains were easily hidden. Returning again to the photo in the book, and comparing the uniforms, we discussed the shift in aesthetic. One of the officers recalled a conversation with a member of the public who said that the modern uniform made them look like the army, an interesting comment considering the historical differentiation between the two, in terms of uniform design. I asked whether they thought that the contemporary uniforms they were wearing made them look more or less approachable. Their response was that that approachability was much more to do with body-language and eye contact, and that, in many respects, they believed that looking tough was advantageous. Referencing an incident involving someone acting aggressively, which they knew I had been witness to (described in the previous chapter), they noted how looking tough was a good reminder of their authority. More generally, looking tough, they said, meant that people would be less likely to pick a fight with them.[7] These statements are revealing about the role that uniform plays in the construction of the officers' sense of identity, their purpose, and how their authority is mediated.

Fig. – 45 Scan from book, Officers in formal uniform 1950s & Helmet with light on the top

[7] Without further research into citizen perceptions of approachability, these kinds of statements are hard to verify. That said, this response highlights the officers' perceptions in regard to their visibility and how they conduct their work.

Fig. – 46 Scan from book, Ford Consul GT & Women Officers

The largest group with whom I discussed the book involved eight officers, one being the sergeant. It took place in the early hours of a Saturday morning, immediately after a night shift policing Friday's 'nighttime economy'. The shift had involved walking around the town centre, ready, in case any of the pubs and bars required assistance, and more generally, being a visible presence. The likelihood of it "kicking off" and the fact that the officers were working in a group (officers normally work either alone or in pairs), meant that this seemed to be one of the most exciting shifts for the officers. This particular evening, the town centre had been busy and the shift had been relatively eventful, with a foot chase and several drunken fights to attend to. The officers were in good spirits as they returned to the station. As they were milling around packing up their belongings, one of them mentioned my book and some officers who hadn't already got a copy asked if they could have one. I obligingly handed some out. Flicking through, one of the officers commented on an image from the early 1970s showing a Ford Consul GT (see Fig. – 46). He and another officer (whom I knew to also be car enthusiast) began to discuss some of their favourite police cars over the years, many from before they had joined the police. As this conversation was beginning, simultaneously, another group of officers were finding the year that each of them had joined (for most, this was within the last five years). The way the officers were interpreting the book was exactly what I had hoped for.

Fig. – 47 Image of Ford Cortina Mk2 police car and officer with radio

The conversation about cars seemed to offer a way to focus the officers' attention, and to raise the topic of unit-beat policing in relation to BWCs. I turned to a double page spread showing an officer holding a radio standing next to a Ford Cortina (see Fig. – 47). I briefly described how the car and the radio made a new kind of policing possible and some of the knock-on implications that this had for police visibility. We discussed how response policing still lends from this model, and officers commented that they couldn't even imagine policing without their radio. I posed a question: if two technologies, radios and cars, could combine to create a new model of policing, then could a BWC (something some of them had told me was revolutionary) prompt a similar change? One officer pointed out they had never known a time before BWCs (this was true of many of the officers in the group). Another pointed out that in some instances BWCs were a prerequisite, giving the example of stop-and-search.[8] Another described the BWC as being like an octopus, explaining that the technology was "one of those pieces of kit which, although not necessarily being 'front and centre', played a role in pretty much everything we do". Others agreed with this characterisation, and some noted how, in the days I had been shadowing them, "there wasn't one specific time that BWCs are used", but rather, that they're used all the time. The BWC as an octopus, this seemed to echo the idea of the BWC being multiple and enacted in various ways, as noted in previous chapters.

[8] At other points during the fieldwork, the use of BWCs as a way to preventing "grief" and false complaints against them when conducting stop-and-searches was discussed.

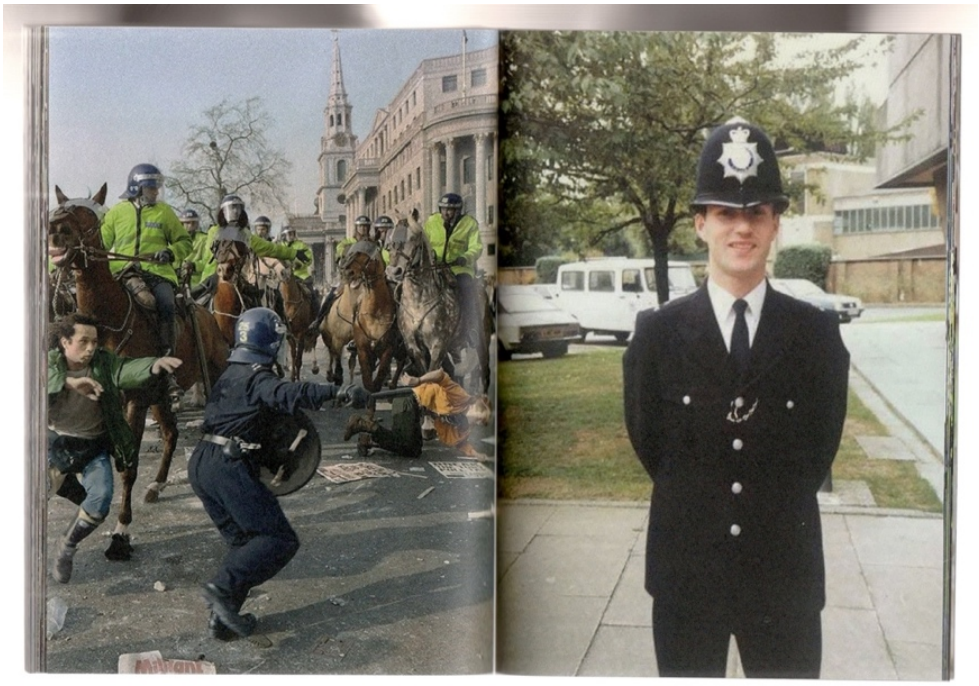


Fig. – 48 Scan from book, Poll Tax Riots (1990) & New recruit at Hendon (1991)

The conversation then returned to when each of the group had joined the police. One member of the officers, who was nearing retirement and was by far the longest serving, showed one of the newest and youngest members of the team an image of a new recruit posing outside Hendon Police Centre from 1991 (see Fig. – 48): "look! that's the kinda thing we used to wear when I started". The older officer talked in detail about some of the day-to-day realities of wearing the uniform in the picture, describing the way it felt (uncomfortable at times), and listed the changes that had taken place "it was pale blue shirts before the white ones, and you had a clip-on tie of course. Proper standards in those days". Flicking through some of the adjacent pages the officer reflected light heartedly on some of the other changes that had taken place over the course of their career, the growing significance computers, for instance: "Christ, I remember us getting computers, forget body-worn" The others in the group, most in their 20s or early 30s, looked around the room and said how they found it hard to even comprehend policing without technology. The response from the officers reflects, in many respects, Barry's (2001) argument, that we live in a technological society.

This section has described how a small, neon-yellow book was used as a research technology to introduce police officers to ideas about police visibility and the role of technology in mediating it. In the various conversations that the book engendered, an overarching theme emerges, namely, that uniform is important to how officers understand themselves and their role. Uniform, as has been established previously in this thesis, contributes to police visibility of course, and provides operational effectiveness (Goldsmith, 2010). For the officers', uniform was about more than simply being seen. This is noted elsewhere, for instance, Young describes uniform in symbolic terms: as a symbol of both power, and of separation, between officers and civilians (1991), something shown in the comments regarding memorabilia is reflective of a uniform's symbolic qualities. Simpson notes that uniforms 'emphasize group membership' (2018, p. 1), I certainly saw this to be the case. Throughout my visits, officers frequently fetishised uniform and kit; which boots were the most coveted (the consensus seemed to be the brand *Altberg*); what made the trousers worn by armed-response and dog handlers superior (the fact they were made of ripstop material and could

be drawn in at the hem), and how, despite instructions not to, some tucked their trousers in to replicate this look. These points echo Simpson's argument that for the police, no other equipment is as important (2018). The relationship between uniform and gender was discussed explicitly. Here, conversation was less about visibility and was more concerned with the ways in which uniform and other pieces of technology might underserve and marginalise women as a direct – and in the case of the 'lady truncheons' *intentional* – result of their design. Young highlights how uniform worn by women, has become less feminine over the years (1992), and this movement away from the impractical, even dangerous, uniform policies, should be welcomed.[9] That said, as the comment about the stab vest shows, equality is not achieved by simply permitting the women to wear or use uniform or kit designed specifically with men's bodies in mind. Indeed, throughout history, uniform 'often seems to have been designed to allow [women] more easily to become surrogate men' (Young, 1991, p. 210). Returning to the topic of police visibility, the officers' comments about the militaristic aesthetic of their uniform are incredibly interesting, especially considering the design decisions that were central to early police uniforms. Waddington and Wright note that despite continuing to be 'exceptionally lightly armed compared to police forces elsewhere, [o]ver the past two decades patrolling officers have radically changed their appearance' (2008, p. 468), the addition of the stab vests being a key component of this. Bearing in mind that Young's says that policing is 'a fiercely masculine domain' where '[m]etaphors of warfare predominate' (1992, p. 266), the fetishisation of kit from specialised units such as armed response, noted above, and the role uniform plays in emphasising and supporting the *force*, rather than *service* elements of their work, is certainly worth further research and attention, and from a material, or ANT inspired, perspective.

The conversations that the book inspired also helped shed light on the BWC. In response to a conversation about unit beat policing, one officer described the BWC as being like an octopus, noting its central role in many aspects of police work. This rather poetic conceptualisation of the technology was instrumental in my understanding of the multiple ways the technology was used by officers during my visit, and of the technology more broadly. Other comments and conversations, for instance, those concerning how long each of the officers had been serving, helped build a picture of the environment in which BWCs are being used, highlighting, for example, that most of the officers were relatively new to policing and had therefore never known a time before the technology. BWCs, for lots of the officers, are not a 'new' piece of police technology, nor have they 'changed' how they go about their day-to-day duties. Instead, a BWC, for them, is something that has always been central to their work, how they understand their role, and perhaps, themselves. Less directly, the conversations regarding the marginalisation of women in the design of technology raise important questions with regards to how the designers of BWCs consider non-male, and indeed non-White, bodies, when they design such technologies. Taken collectively, the various conversations described above show how officers chose to use the book and how they wanted to interpret the images in it. Much like probes, the book was certainly uncontrollable. As a researcher, I tried to guide the conversation into interesting spaces and then to make sense of these later. The officers brought new meaning to the images through their reading of them. In doing so, they (occasionally) provided answers to my questions, but more frequently, they brought new issues and ideas to the to the fore, thus, they participated in 'inventive problem making' (Michael, 2012b). Finally, it is worth noting that the book not only allowed me to learn about the police, but them about me. As one of the

[9] It's worth noting that recently gender neutral police uninforms have become an increasingly discussed topic (Wadhera, 2021).

officers said, this made me "different to other people who come and do research about us".[10]

7.4 – Buttons

This section focuses on one of the alternative BWCs that I produced. Specifically, it discusses the render of the camera with the additional button (see Fig. – 49). The section considers how this render and the button it shows were used as a speculative proposition and an invitation to do design. Rachel Plotnick, in a book all about buttons, says:

> [P]ush buttons loom large in our cultural imaginary [...] push a button and something magical begins. A sound erupts that seems never to have existed before. A bomb explodes. A vote registers. A machine animates, whirling and processing. A trivial touch of a single finger sets these forces in motion. The user is all powerful, sending the signal that turns on a television, a mobile phone, a microwave. (2018, p. xiii)

As noted in Chapter Five, the decision to add another button to one of the alternative BWCs that I produced was inspired by the idea of adding extra functionality, something that had occurred to me while soldering a connection on my own homemade BWC. Like Plotnick, I found the idea of the button intriguing: what would or could exist that didn't before? Buttons, are 'symbolic' and 'seductive', Plotnick notes, making them 'great fodder for novels, films, and advertisements' (2018, p. xiii). How would the officers, in Plotnick's words 'the all-powerful users', respond? I wondered if an additional, undefined button could offer a way into a fictive and speculative space, and once there, what the officers would want to happen.

Fig. – 49 Alternative BWC with extra button

I showed three officers the alternative BWC, when travelling in the back of a carrier (a police minibus for transporting officers). Prior to doing so, I asked them what they thought of the design of the existing cameras (the ones they were wearing), asking them if there was anything that they thought could be improved. I had found this to be a good way to introduce and frame the alternative BWCs, and to get some of the more obvious responses, such

[10] In the month before my visit, another academic had also conducted research with the team.

as improved battery life or tougher screens, out of the way. I then showed the image with the extra button, and said: "so there's this extra button – what would you do with it?" The first officer responded saying that it would be useful to be able to take photos during a recording, something, he said, that would make collecting evidence easier and would reduce the amount of time spent scrubbing back and forth through footage when completing paperwork. The other officers agreed with his suggestion, and there was a brief discussion as to whether or not the cameras could even be programmed to do this already.[11] Another officer then said they'd like the button to allow footage to be streamed back to the station so that the sergeant or inspector could see what was going on.[12] The other officers seemed to also think this was a good idea. This was an intriguing suggestion and one I had not anticipated. A lively discussion followed in which some more of the implications of this speculative innovation were thrashed out collectively.

Gates notes that the ability for superiors to check up on subordinates remotely raises privacy issues, and potentially opens the door to peer-to-peer surveillance (2016). I pointed this out to the officers and asked if they would see this as an issue. One officer quickly interjected, joking that having the camera come on while you were on the toilet, or when grabbing food wouldn't be ideal (something also noted by Gates). In response, the officer who had made the suggestion noted that their idea was for the camera to "beam the footage" only if the officer pressed the button, but that being said, he wouldn't be against superiors being able to "request" to view what you were doing: "if it sounded like it was kicking off, if you were dead in a ditch at least they'd be able to see what was going on". It was then agreed amongst the officers that adding GPS would make it easier to locate someone if something were to happen, and one of the officers pointed out that some of the newer cameras on the market already have some of these features. The officers then discussed how this might work in the control room, suggesting that this would mean those closest to incidents could be dispatched, improving efficiency. Another idea, building on the ability to live-stream or "beam footage", was the suggestion that it would be good to be able to receive advice from superiors or from experts in certain situations, a mental health incident we had attended in the previous days was given as an example. This proposition involved the expert being able to access the BWC footage live and offer support and guidance via the officer's radio.[13]

What issues are at stake in the officer's response to the button? What do the speculative propositions tell us about their thinking with regards to the BWC, or about police visibility? The primary focus of the officer's suggestion was that the button might be able to provide additional safety and security, (further underscoring some of the findings of the previous chapter in regard to the officers' perceptions of risk). The conversation that followed then touched upon other issues and concerns, namely, the matter of privacy and the ability to access live, expert knowledge. The officer who gave the suggestion reported that they would willingly exchange privacy (and potentially open themselves up to surveillance from superiors) in exchange for more safety. This tells us something about this officer's concerns about their job, that they see it as dangerous, but also, interestingly, that this, as a

[11] One of the things that many conversations about the BWCs highlighted was how little the officers knew about the existing functionality the cameras. Although aware of the core features (recording and uploading footage, etc.), many were unaware of how the cameras could be programmed differently.

[12] It is worth noting that in the prior to this thesis being submitted, West Midlands Police announced that they will begin live streaming BWC footage, making it first police force in the UK to do so (Mackie, 2022).

[13] Throughout the visits, the idea that there would be much more integration between technologies was common.

concern for him, ranks higher than privacy.[14] The suggestion is also indicative that perhaps the officer in question perceives their BWC as a device that is there for them and their safety, rather than a device that they wear for the protection of others.[15] The second element of the proposition, that the BWC might be used to provide access to expert advice, also relates, in many respects, to this idea of safety. As noted in the previous chapter, a high proportion of the incidents attended to by the officers who I was with, were related to mental health. Mental health related incidents, the officers suggested, were unpredictable, more dangerous, and harder to police. Moreover, the officers were also aware that they were dealing with vulnerable people in moments of crisis, people that needed help, and who, as such, did not fit easily into the officers' conceptions of their role as protectors of good from bad, (something noted by Holdaway (1983), and touched upon in the previous chapter). The officer's suggestion about the introduction of GPS (something which, if not a feature of these officers' cameras, is certainly a feature of newer cameras) is intriguing, reflecting, perhaps, an acknowledgment of the camera (and themselves by association) as a 'data node' (Wilson, 2019a, p. 69) within a broader policing infrastructure. In a similar vein, the suggestion for expertise and knowledge to be provided remotely, and in real-time, echoes Wilson's discussion of platform policing and police bodies being 'target of intensive surveillance, allowing for precision management' (Wilson, 2019a, p. 69). In terms of visibility, both of the suggestions centre around the BWC being able to extend the visibility of the BWCs wearer beyond their specific locale, however, interestingly, only to a limited and specific audience.

The extra button functioned as a way of inviting the officers to speculate, to think like designers, and in doing so, to consider the futures of a technology they use all the time.[16] It acted as a way of prompting inventive problem making (Michael, 2012b), by way of participatory speculation (Ward, 2015). Unlike the questions about how the camera might be improved, which tended to result in pragmatic answers based on the existing qualities of the device, and based around current usage, the extra button offered a way into a speculative space where other possibilities could be imagined. Instead of focusing on the material qualities of the BWC, static and devoid of context, the button forced consideration of how the technology might, in ANT terms, relate to a heterogeneous array of actors. Moreover, this speculative technology emerges, much like Mol's disease (2002), through practice, and as a result of the ways in which officers began to 'test' its functionality within the frames of their fiction. The button, then, could perhaps be described as a 'speculative machine' (Guggenheim *et al.,* 2017), as discussed in Chapter Four. Something that extends the invitation to speculate to anyone. It is important to recognise and remember, however, where and who these speculations are coming from. For while anyone might be able to speculate, the officers are not anyone.[17] Michael Halewood discusses 'situated speculation' (2017), drawing on Haraway's notion of situated knowledge, as discussed in Chapter Two, and emphasises the importance of *where* speculations come from: 'speculation cannot transcend or deny the ground that enables such speculation or act of thought. We must pay attention to that which allows us to think' (2017, p. 61).[18] Suffice to say, these speculations don't speak for all officers.

[14] The fact that the other officers agreed with him rather than question this proposition is also revealing of their views on the matter.
[15] Interestingly, the BWC in this proposition is not as a deterrent to violence towards the officer.
[16] Arguably, people constantly *do* design and think like designers, that said, few might label it as such.
[17] Future research might ask other publics to speculate on how they would programme the BWC differently.
[18] In many ways, this notion of situated speculation echoes the importance of interpretation when using design probes, as noted in the second section of this chapter.

7.5 – (Re)scripting Failure

Not all of the research technologies were successful in the way that the book or the button were. Some of the research technologies didn't do what I intended them to, and in many ways, it could be argued that they had failed. Having said that, they were not completely useless. No, there was a value in them, and this was principally *because* they didn't work as I had hoped or expected. While they didn't necessarily start the conversations I wanted, or directly answer the questions I hoped they might, they did tell me other things. In this final section, I will discuss what these 'failing' research technologies might tell us about the people and contexts they were designed for, and I consider whether they should in fact be thought of as failures at all. The section will focus primarily on the series of scripts (also discussed in Chapter Five).

The scripts were one of the last of the research technologies that I showed the officers, (perhaps an ominous sign in itself). The other research technologies had been successful, prompting all manner of intriguing conversations, and there had been an obvious time to show each of them. This moment never seemed to arrive for the scripts. I thought about getting them out to discuss on a number of occasions, but then felt uncomfortable with the idea. One day, about two thirds through the visit, I decided it was time. I was with two officers with whom I had developed a close connection and who had been receptive to the other research technologies I had shown. The scripts couldn't stay in my bag forever. We were sitting in the police car, finishing a free McDonalds' coffee. It was now or never. I reached into my bag on the seat beside me and pulled out the booklet (see Fig. – 50) containing a selection of the different scripts that I had produced prior to the visit, for instance, the scenes from *Dirty Harry* (1971) and *Serpico* (1973), in which the BWC had been fictionally inserted, and a couple of scenes from a series I had called 'First Meetings', which simply presented the first scene of the protagonist from a range of British television programmes.

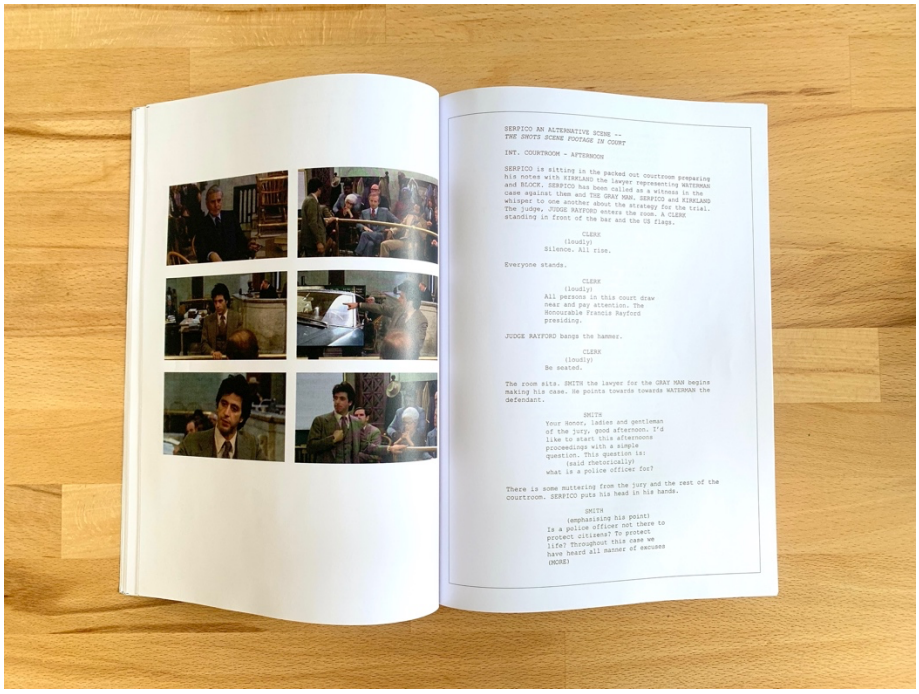


Fig. – 50 Script booklet

As I passed the officers these various scripts, I talked about how all of the various research technologies were related different strands of my research. In relation to the scripts specifically, I noted Reiner's point about film and television being, for many people, the primary means by which they get their information about the police (2010). I also explained that in the early stages of the project I had felt an obligation to watch some of the classic police dramas like *The Bill* (1983 –2010) and *The Blue Lamp* (1950). I asked them what they thought about police TV, and if they watched any. Both said that it "was a bit close to home", one saying that "you don't want to watch work on TV if you're trying to relax". The other said that they watched *Line of Duty* (2013 – present) and that, although it was popular in the station, people were fast to spot any production errors or details that were wrong. I noted how portrayals of policing I had watched differed from what I had seen so far during the fieldwork, and how there was something of a gap between fiction and reality, particularly with the things such as paperwork, which television, perhaps understandably, because it is fiction didn't seem to show. One of the officers said that sometimes members of the public were surprised that things take longer in real life, and that the reality of day-to-day police work was not car chases, murders, and terrorist plots. I explained the rationale behind the scripts and how the BWC changed the outcome in the famous *Dirty Harry* scene. This was met with a smile and a congratulatory comment on the volume of stuff I had made. I was disappointed. The officer passed the booklet of scripts back. Deep down I had hoped that we might read through the scripts together, or that that the officers might comment on the impact of the BWC in the script, perhaps correcting some of the assumptions or mistakes I had made when writing it. I'd even brought my red pen. As with all the research technologies, I hoped the scripts would prompt new areas of conversation. It didn't look like this was going to be the case. One of the officers changed the topic of conversation and I put the booklet back in my bag. During the rest of the trip, I only got the booklet of scripts out again once.[19] That time was equally as unsuccessful. We were in the station and one of the officers I was paired with that day was making a phone call to a victim, so I was sitting with a group of other officers chatting. During the conversation, the topic of television came up; this was as good a time as any. I got the booklet out of my bag, introducing it in a similar way as I had done before, and showed the officers. They passed the script booklet around, quickly flicking through it and smiling politely before returning to the previous conversation. An officer put the booklet on the desk next to him. Again, I was disappointed. The rejected booklet sat there on the desk, next to his laptop, a cold cup of tea, shadowed by the large monitor with some half-complete admin. Then it dawned on me, a possible reason why the scripts might be unsuccessful: they were competing with (or at least looked like) paperwork.

During my time observing officers, one of the things that surprised me the most was the sheer volume of administrative work that even the most mundane of incidents would create, (I described this, and some of the ways that BWCs seemed to be being used to expedite the completion of paperwork, in the previous chapter). A simple, five-minute incident seemed to result in a stack of forms to be filled out. Of course, I hadn't expected it all to be car chases, murders, and terrorist plots; I didn't think it was going to be like a television show (or maybe subconsciously I did), but I probably had anticipated more drama and certainly less paperwork. This shouldn't really have been the case, I had read about the role of boredom associated with day-to-day police work, and Fassin even discusses the

[19] This might seem like a lack of rigour, or that I gave up too easily. Instead, it seemed to make sense to capitalise on the research technologies which were successful rather than continue with one which was failing. Indeed, this was the rationale behind taking a range of things with me.

paradox of real-life policing and fictional portrayals:

> [F]ilms and television series convey this image of constant excitement and riveting adventures. The officers themselves often admit they had this image in mind when they decided to enter a career in law enforcement. On the other hand, the everyday reality of patrols is a monotonous and tedious routine, which basically consists in driving around neighborhoods expecting calls that rarely come and, if they do, often turn out to be mistakes or pranks (2017a, p. 289).

I'd had the image that Fassin describes in mind too. But instead of just 'driving around', the officers who I was with were also doing reams of paperwork. Police work, from what I saw, consisted of lots of paperwork whilst waiting for drama, a lot of false alarms, and the occasional, very dramatic, period, where you were in the thick of the action and everything was a blur. In trying to design a device to talk *about* drama, I had, in fact, managed to design something which had, to the officers, looked pretty unappealing: another document, and another thing to read.

Michael discusses research interviews that were 'disastrous' (2004) and instances when participants 'misbehave' (2012c). In accounts of research events, he says, 'there is a tacit process of sanitization' (2012c, p. 529), a typical method of sanitisation simply being to ignore these disasters or misbehaviours.[20] When discussing these kind of events, Michael talks not in terms of 'failure', or 'lessons learnt', but instead says that they might be, 'read in terms of 'differential success'' (2012a, p. 30). Simply put, Michael's argument is as follows: if we conceive of research events as made up of a heterogeneous array of human and non-human actors (a central tenet of ANT) then they are always (even when they 'fail') a successful enactment of *something*. This 'something' can be studied empirically, even if it was perhaps not what the researcher had initially intended. These points chime with those of John Law and Christine Hine, highlighted in Chapter Four, about research methods being part of the enactment of realities (Law, 2004) and the agency of the researcher 'as a constructor of reality' (Hine, 2007, p. 663). With these ideas in mind, I will now briefly consider what these 'misbehaving' scripts did tell us about policing.

The scripts failed to spark the conversation about fictional portrayals of policing I had hoped for, or much else, for that matter. But what *did* they do? What can be studied empirically and how might they be viewed as a 'differential success' (Michael, 2012a, p. 30)? The fact that the scripts seemed to compete with paperwork reveals something important about contemporary policing in England and Wales, namely, that it has become increasingly bureaucratic.[21] Concerns about the increasing burden of administrative work have been raised by the government, who want the police to 'reconnect' the police with communities (Home Office, 2010). They are also evident in the officer's suggestion in the previous section, regarding how the additional button might be used to help in the process of completing paperwork. BWCs are of course components of this bureaucracy (the footage produced must be dealt with and marked as being evidential or not). Having said that, BWCs are also frequently offered as solutions to bureaucracy too, often as a tool which can reduce the amount of time spent writing (Hymas, 2018). Whilst the scripts failed to spark conversations about the police visibility in the media, what they did highlight and help me

[20] Michael's use of 'sanitize' here echoes Hine's claim, touched on in chapter four, that 'our methodological instincts are to clean up complexity and tell straightforward linear stories, and thus we tend to exclude descriptions that are faithful to experiences of mess' (2007, p. 663).
[21] This was discussed in detail in Chapter Three.

understand, was the significant role that paperwork and bureaucracy play in contemporary policing in England and Wales. The scripts, then, were useful because of how they related to and supported the observational research.

In addition to these empirical findings there are also methodological ones. The rejection of the scripts by the officers threw into sharp relief the reasons why some of the other research technologies *were* successful. The book and the render of the BWC, for instance, appeared to be understood as 'finished' designs; they were products that the officers felt were 'designed 'for them'. The scripts on the other hand seemed to be interpreted more as a work-in-progress.[22] The book (and its images) encouraged collective discussion and could be interpreted however the officers chose, and the button required the officers' expertise and invited speculation, whereas the officers seemed to find it hard to know how or where to give their input with the scripts. There were neither specific questions, nor things in the scripts, for them to answer or respond to directly. Moreover, reading them in full would have taken more time than the officers had to spare. Nonetheless the scripts, as touched on above, highlight the importance of the site in which research technologies are shown, and the interrelationship between the research technologies and observational research. Had the scripts been shown in a meeting room, or without having observed the police in their day-to-day work, it would have been unlikely that I would have been able to understand why they were rejected. As it happened, the scripts helped me make sense of the officers' day-to-day work.

7.6 – Conclusion

This chapter has described the process of using a range of research technologies with police officers to engage in inventive problem making (Michael, 2012b). One of the aims of this approach was to unsettle or destabilise the BWC as it 'hangs together' (Mol, 2002), and in doing so, raise questions that relate to the technology and its surroundings. The chapter began by drawing some connections between ethnography and use of objects (such as probes and in this case research technologies) to do research. The idea that research is always already an intervention (Marres *et al.*, 2018), and that the researcher must take an interpretive stance (Dourish, 2006), were discussed as key similarities between the two approaches, helping to explain their compatibility. The chapter was then composed of three sections that described the process of presenting and using various research technologies with officers.

The first of these, the small, neon-yellow book, was designed in order to introduce the topic of police visibility and to question the role of technology in mediating police visibility throughout history. Using the book, the officers raised a number of topics, for instance, citizen perceptions of uniform, and the fact that the equipment has reflected, and contributed to, women's marginalised role in the policing. The book, and the conversations it engendered, reveal that uniform is not only a technology that produces police visibility, but also much about how they see and produce themselves. From an ANT perspective, the uniform is a key actor in the performance and construction of a police officer. The uncontrollability (Gaver *et al.*, 2004) of the book, as with the other research technologies, underscores the agency of research participants in shaping the research agenda.[23] Officers chose how *they* wanted to interpret it, for instance, using it to pin-point when they started their policing career, something I had not anticipated. In addition to opening up areas of conversation, the book also functioned as a gift, and a way for

[22] The same could be said for the homemade BWC, which, as the anecdote that precedes this chapter shows, resulted in similar confusion.

[23] This is of course central to the notion of inventive problem making itself but also highlights the 'interactive' nature of the book (Barry, 2001).

me to show my credentials as a designer and a researcher.

The alternative BWC, with the additional and undefined button, was the second research technology discussed. This research technology asked the research participants to think like designers, to 'do design', and speculate about some of the possibilities of how BWCs might function in other ways. The various speculative propositions that the officers suggested existed within complex and 'semi-fictional' world that they had constructed, but importantly they reflected the realities and concerns that relate to the officers' day-to-day duties.[24] The idea, for instance, that the button might be used to "beam footage" raises a number of issues, such as officer safety and privacy, but also involves predictions and expectations about the future integration and development of police technologies. Of the research technologies used in this project, the extra button was perhaps most effective in gathering the sort of thick descriptions championed in ethnography, and certainly has a lot of potential to be developed further as a method: a form of 'speculative ethnography' by way of participatory design.

The third and final section discussed how a series of scripts, which I had hoped would raise issues around policing and the media, in fact, failed to do so. This section discussed the idea of failure in relation to inventive approaches and, drawing on Michael's discussion, both of disastrous research events (2004) and misbehaving participants (2012c), discussed whether research technologies can 'fail'. As Michael highlights, if we conceive of research events as made up of a heterogeneous array of human and non-human actors then they are always a successful enactment of *something* (2012a). Following Michael, although the scripts were unsuccessful in raising the issue of police visibility and the public understanding of policing via the media, they *were* successful in other ways. Notably, for the way that their rejection shone a light on the volume of bureaucracy in contemporary policing in England and Wales. The 'failure' of scripts also highlighted some of the features that made some of the other research technologies successful with research participants, for example, that the book was perceived as being designed 'for them' and/or requiring their specific expertise.

In the following chapter I will draw some connections between the last three substantive chapters, discuss the various contributions that this research project has made, and highlight some of the findings and more generalisable conclusions.

[24] I say 'semi-fictional' here partly to highlight how close to reality the officers' speculation actually was. They might have chosen that the button do something surreal, but instead the speculation was based heavily on the real world and was more just an alternative reality.

Anecdote: Being With the BWC

I've followed the BWC. I've followed it in the news and in the literature; its migration from TASERs to the body. I've followed it through making, in the back of police cars, and into people's houses. But it's also followed me. It's followed me as an idea, a problem, a matter of concern, a thing that keeps me up at night. I've *been with* the BWC throughout the PhD. Towards the end of writing the PhD, I came across a quote by Annemarie Mol in her book *Eating in Theory*. She talks of a way of knowing that its 'neither objective nor subjective, but transformative' (2021, p. 55). It's a line which beautifully describes the process of a PhD. A way of knowing that comes from being with something over an extended period of time. I like to think the thesis goes some way to changing the BWC, even if only in a small way. The BWC has certainly transformed me.

Chapter 8:
Conclusion

8.1 – Introduction

This thesis started with a photograph. Taken out of an upstairs window of a building in Brixton during the summer of 2016, the image shows a man being arrested and a crowd of people holding up their mobile phones to record the incident. The police officers are recording the scene simultaneously with BWCs, small cameras mounted to their chests. Footage, data, and realities multiply. The incident, and the photograph, as I studied it afterwards, spurred me on to undertake this PhD research. I was fascinated by what was going on, how our relationship with time and space, not to mention authorities such as the police, are changing, as a result of technology and a new ability to record one another. I knew a little about BWCs already and I was uneasy about claims that said adopting this technology would provide an 'objective' viewpoint, or make policing 'transparent' (Dominiczak, 2013; White and Malm, 2020). I had a feeling that BWCs probably did *more* than research was currently accounting for; I wanted to know more. I wanted to know how else a BWC might work, what other things they might do, and the kinds of realities that they might make possible. As a designer, I felt a sort of responsibility, that this piece of design should be understood. The chapters that have followed the photograph of the arrest have described a design-led approach, which builds both theoretical and methodological connections between three disciplinary areas, design, criminology, and STS. In doing so, this interdisciplinary project has offered novel ways for conceptualising and researching police use of technology. In this final chapter I will provide a review of the various findings and discuss the contribution this thesis makes to various readerships. The chapter is divided into three sections. The first section discusses where this project sits in relation to the three disciplinary areas just mentioned. It reflects, both theoretically and a methodologically, on what it means to do research at the juncture of these disciplines, and highlights some of the strengths and potential issues with regards to doing so. The second section outlines empirical findings, drawing connections between how I observed BWCs being used by police officers in Fritton (discussed in Chapter Six) and the making and speculating activities (discussed in chapters Five and Seven respectively). Finally, drawing on the previous two sections, the third section highlights and summarises the conceptual and theoretical findings of the research, one of the central ones being concerned with the idea of multiplicity. The implications of this idea, for both the BWC, but also, vitally, other police technologies and policing more broadly, are discussed. This final section also charts some of the potential avenues for further developing and communicating the ideas in this thesis.

8.2 – Doing Design & Social Research

I have described the project within this thesis as being at the juncture of design and social research. Early chapters (chapters One and Two) drew theoretical connections between design, criminology, and STS, noting, for instance, the attention, or lack of attention, paid to objects by these three disciplinary fields, and discussed the applicability of an ANT inspired approach. Chapter Four then addressed the connections from a more methodological perspective, describing how three interconnected approaches, making, observing, and speculating were used in order to investigate the police BWC. The following three substantive chapters built on these ideas and empirically examined the process of working at this juncture. What has been learnt in the process? What can be said of research conducted at this, or similar junctures? What are the strengths or issues related to an interdisciplinary project such as this? Does the juncture even exist after all? And if so, what does this mean for the three disciplinary areas in question, and for future research? This section provides clarity to these questions. It addresses each of the disciplinary areas in turn before discussing drawing some overall conclusions and outlining potential readerships.

One of the most significant contributions that this project makes stems from the connection it establishes between criminology and STS, and perhaps more specifically, criminology and ANT. As Chapter Two noted, whereas there are established connections between design and ANT (Ward and Wilkie, 2008; Yaneva, 2009), criminology has been slow and perhaps somewhat reluctant to engage with objects and the so called 'material turn' (Savoie *et al.*, 2017). As a discipline it has ignored, to a great extent, the often-central role that (designed) objects play in crime and its control. In instances where it does address objects, it has tended towards thinking of them as thin; that is to say, things that do only their stated purpose, or which shape relationships completely (Savoie *et al.*, 2017). As was discussed, this tendency towards an overly-deterministic view of technology is rather inadequate and limits the potential of criminological enquiry. Having said that, Ferrell *et al.*, in their 'invitation' to cultural criminology, do highlight the significance of objects in the cultural understanding of crime – they give the examples of 'the pauper's shopping cart, the police officer's truncheon, the gang member's bandana' (2008, p. 2) – and encourage methodological novelty and interdisciplinarity. By drawing connections between design and criminology, whilst keeping in mind some of the central premises of ANT, this project offers new ways for the objects of crime and its control to be attended to. The project has advocated for studying objects empirically (a BWC in this case), and for using an interventionist and inventive approach. In doing so, technology has been shown to be more than simply a 'force' that shapes behaviour, or a 'thin' object that does only one thing, and instead, to be an actor that plays a central role in how various forms of sociality are performed or enacted. Moreover, by studying these enactments, we reveal that the BWC in fact 'works' in multiple ways (de Laet and Mol, 2000), these enactments will be discussed in more detail in the following section. Following Mol, and by studying these various enactments, we reveal that there is in fact more than one BWC. By studying how a BWC is enacted we find that it is inseparable from the human and the social, and that it gains any political significance as a result of how it is arranged and performed in relation to other actors. As noted in the Introduction, much of the research into BWCs examines the technology as a deterrent. Certainty, in some instances, a BWC might be used a deterrent, but in other instances it might be enacted very differently and with very different political implications. These too require analysis and consideration.

This project has used various methods. In addition to observation, making and speculating have been used to stack ontologies (Nold, 2018), engage in participatory speculation (Ward, 2015) and inventive problem making with research participants (Michael, 2012b), all with the aim of understanding the BWC. This approach to social research accepts that research is always already an intervention (Marres *et al.*, 2018). Based on this assumption, research participants (in this case the police) were introduced, practically and materially, to issues relating to the BWC through the use of what I termed 'research technologies'. For criminology, a discipline deeply concerned with the meaning of crime and the mechanics of power, these ideas are significant and open up a rich area of potential enquiry, and perhaps more importantly, new ways of *doing* research. They offer the discipline a way to take account of the central role that objects play in crime and its control, and a new way of asking questions. With this in mind, this research can be seen as a contribution to the 'slow criminology of socio-technical orderings' as called for by Savoie *et al.* (2017); a way to attend to the messy realities of the objects of crime and its control, and a new way of doing cultural criminology, which, after all, is discussed as an invitation (Ferrell *et al.*, 2008). I will return to some of the methodological implications of this interplay between criminology and STS again at the end of this section.

With the above in mind, and turning our attention now to design, this project uses design methods and processes as ways of doing social research. In doing so, the project suggests that design methods, in conjunction

with social research methods, can be used as a way to engage with its own impact on the world as a producer of new things and realities. In short, the project uses design to know more about a piece of design. Buchanan, as noted in Chapter Four, warns that '[t]hose involved in design research are easily drawn into research in other fields' (2001, p. 17), and that resultingly, we might be tempted to 'evaluate design research by its contributions to other fields' (2001, p. 17). The task for designers, he claims, is to 'move into other fields for productive work and then *return* with results that bear on the problems of design practice' (2001, p. 17 emphasis added). After conducting this research, and considering its various contributions, I am somewhat uncertain about Buchanan's framing of the relationship between disciplines, and perhaps more so about this notion that the designer must 'return'. To consider again some of ideas discussed in Chapter Four, this research has advocated a more synergetic relationship between disciplines. A juncture or junctures, yes, but ones that emerge from moments of productive friction rather than the import and export of knowledge across policed borders. This friction, as noted above, offers new ways of doing social research, a way of adding something of a designerly thickness to the objects of crime and its control. But there are implications for design too. It offers a new way of doing and thinking about design. As shown in Chapter Five, by engaging with social research literatures, design has new material to work with. Ideas and concepts from social research can be interrogated materially and then incorporated into design outcomes. Design's own concepts and methods can then be allied with those from social research. Through a sustained commitment and ongoing obligation to the principles, methods, and knowledge of social research, design gains something of a sociological or criminological thickness too. The words 'sustained' and 'ongoing' are important here. This is not merely the application of sociological method to design, but rather a rethinking of a design practice design through the principles, aims, and goals of social research. The juncture between the disciplines becomes, to use an analogy linked to design, something like a friction weld.[1]

Buchanan notes that one of design's strengths is that it has no 'settled on a single definition' (2001, p. 8). This, I certainly agree with. What follows can be thought of as a way to resolve the uncertainty concerning the *return to design* noted above, by instead expanding our definition and the field of design itself. Here, I am informed by Lindström and Ståhl's suggestion, noted in previous chapters, that design might shift from the 'the making of the new through making new things and services to un/making harmful relationships that have emerged in the aftermath of previous makings' (Lindström and Ståhl, 2020, p. 1). This kind of design practice is less concerned with the production of more: more useful, more usable, and more desirable products. Instead it is one that recognises that the outcomes of *existing* designs result in new realities which can never fully be anticipated or prepared for in advance (Winner, 2001).[2] It is a kind of design that feels an acute responsibility to address the potential implications of existing design on the world. As the above has shown, this is inevitably an interdisciplinary project. To truly understand the implications of BWCs, for instance, it has been vital to involve other disciplines; it cannot be done without an understanding of policing, and of some criminological theory. It is also an ethical project. Remember, the aim is for the unmaking of harmful relationships. A quote from Haraway aptly summarises the aim of this kind of design, which is simply, 'to make a difference – however modestly, however partially, however much without either

[1] Friction welding is a process for joining two materials. Through a combination of mechanically generated heat and lateral force the two materials become fused at a point called a 'flash'.

[2] This is not to say that the kind of design I am advocating is not concerned with production, as has been shown, making and production are key components of it. This production is, however, seen as a means to an end (a way to know more about specific issues or questions) rather than an end in and of itself.

narrative or scientific guarantees' (1994, p. 62). In the case of this project, the aim (and difference) has been to shed new light on some of the realities of a technology that have been largely ignored. This requires commitment. Designers can't simply just turn up and expect to understand the contexts in which technologies such as a BWC are operating. This kind of design is not a toolkit or set of resources that can be applied to an issue. Instead, it requires designers to commit themselves to the disciplinary juncture; their practice exists at the weld after all.

As the above suggests, the connection between design and criminology is informed both theoretically and methodologically by STS, and specifically by ANT. Some of the most significant implications of STS to the project are the ideas that the social 'is not something that simply exists out there but is *made*' (Marres *et al.*, 2018, p. 19 emphasis in original), that nonhuman actors have a role in how this sociality is performed, and that technologies (designs) might work in various ways and have multiple ontologies (Mol, 2002). These assumptions make it possible to examine the objects of crime and its control ethnographically, or perhaps more accurately, praxiographically. They also introduce the possibility, as touched on above, of other kinds of knowledge production, of interventionist research, inventive methods (Lury and Wakeford, 2012; Marres *et al.*, 2018), and for the construction of a research object across multiple sites (Hine, 2007). A multi-sited approach, as discussed in Chapter Four, accepts that objects are involved in complex arrangements and are not easily bounded (de Laet and Mol, 2000), and comes with 'a willingness to peruse connections rather than accepting field boundaries' (Hine, 2007, p. 656), to 'follow the actors themselves' (Latour, 2005). Certainly, one of the strengths of this project has been as a result of following the BWC and connecting different sites and kinds of scholarly activity.[3] This approach has allowed for material, ideas, and questions to travel across these different sites (from the site of making, or even procrastination, to the back of a police car or the police station, for instance). This has allowed, as evidenced in chapters Five and Seven, for the interrogation of a complex and multiple research object. It is worth noting that this interventionist approach also allowed for the communication of the research, its goals, purposes, and the kinds of outcomes and insights that might be generated, to research participants, in doing so helping to achieve ethical participation.

What does working at the juncture of disciplines mean for the knowledge produced? What contributions does the research make? How does it make them? And to whom does it speak? There are a number of readerships for this research. As the following section will discuss in more detail, there are empirical findings relating to police use of BWCs that are significant for scholars in policing and criminology. Similarly, both policing and criminological scholarship can take inspiration from this research's design-led methodology, and the connection outlined above, between criminology, STS, and ANT. For designers, the project offers a new way to attend to the aftermath of design (Lindström and Ståhl, 2020), and for engaging with the politics of technology and its use. It functions, therefore, as something of a template for scholarship at the juncture of disciplines, especially that which seeks to engage with large organisations, such as the police. As a piece of STS research, the thesis is both a contribution to post-ANT scholarship, and to the area of inventive methods. And, in a small way, it also contributes new models for the communication of knowledge, both beyond the written text, or expanding it to include new forms of writing. I will reflect more on the implications of these points for the future communication and dissemination of this research in the final section.

[3] This, in many ways, answers a potential criticism of this research: that it is not a 'proper' ethnography (generally characterised by the researcher 'going native' as a result of sustained engagement in a specific fieldsite, able, therefore, to capture true, 'fly on the wall' observations). Here sustained engagement involves '[following] the thing' (Marcus, 1995). As one of the officers joked: I was observing the camera (not them).

As this section has shown, working at the juncture of design and social research has been highly productive, and there are exciting methodological and theoretical implications. This said, there are also hurdles that needed to be overcome. Perhaps one of the most pressing, as noted in Chapter Four, has been something of a misunderstanding by research participants and those granting access, in terms of what design is, where its interests might lie, and what kinds of outcomes it might produce. Initially it was assumed that I was interested in designing new BWCs, for instance. This raised potential ethical risks in relation to gaining informed consent (after all, how can participants agree to take part in the research if they don't fully comprehend what it is working towards). As discussed, the research technologies were useful in this regard. They functioned as useful tools which articulated not only what design research is concerned with (for example, how images of Peeler's uniform in the book allowed me to talk about the design of police visibility), but also the forms that this kind of design-led knowledge might take. Another, somewhat related, obstacle was that without established connections with police forces, gaining access for this kind of research was hard. More orthodox policing research often takes place in academic departments which have established relationships with police forces. This was a luxury I was not afforded with this project. Instead, the project required that a relationship be built from scratch. As more design-led criminology is undertaken, I can foresee these issues raised here becoming easier to overcome.

8.3 – BWCs & The Role(s) They Play

As I described in the introduction to the thesis, the existing research examining the implications of BWCs, although valuable and important, felt limited, to say the least. Geared towards providing cost benefit analyses and objective evidence for or against the deployment of BWCs, I knew that this body of research would only reveal so much; it would only reveal what the researchers were looking for. Considering the discussion around BWCs as a 'revolutionary' new technology (Ford, 2015), I wondered how else (other than for just recording evidence) officers were using them? What else did BWCs do; did they work in other ways? As I have said, I wanted to know more, and I wanted to know if there were other ways of knowing. In this section, I will briefly recap on the empirical findings of the research, drawing some connections between the three substantive chapters whilst making some generalisable conclusions.

As has been established, one of the central ideas and arguments in this thesis, following Mol (2002), is that BWCs are multiple. As result of different enactments there are different BWCs. In Chapter Six, I outlined three specific ways in which I observed BWCs being enacted by police officers in Fritton. Each of these enactments related to a different scale or intimacy, namely, police bodies, another police technology (TASER), and the broader notion of police organisational culture. Despite the various enactments, the BWC (or rather BWCs) 'hung together' (Mol, 2002). I argued that two things connected the various BWCs and how they were performed. First, a 'new visibility' (Thompson, 2005) that has emerged as a result of ubiquitous smartphone use, and second, the conditions of austerity characterised by a reduction in staffing resources and increased demand. Both this new visibility, and the way in which the police have responded to the challenges of austerity, can be thought of as features or conditions of, what Barry terms, a technological society (2001). That is to say BWCs exist in a society awash with images, full of ontological uncertainty, and where technology is both source and solution to societal problems.

A BWC connects quite literally to an officer's body. It informs their experience of environments, the way they think about their work, and the 'craft' (Crank, 2004) of policing. The introduction of the BWC turns a police officer

(if they weren't already) into cyborg (Haraway, 1991). When wearing a BWC it is hard to disentangle which are human capacities and which are technical, where the BWC ends, and the officer begins. Following Barry (2001), we can think of a BWC as an interactive device. Many of its interactive qualities stem from its capacity to offer a new temporal framework to the day-to-day work of policing. BWCs allow officers to rewind and replay an incident and to make sense of it. They can use the BWC as a memory aid, or even, as Brucato suggests, a way to '*produce* narrative accounts that explain video contents within the language of department policy' (2015, p. 464 emphasis added). But it also appeared that officers thought about this new temporal framework in real time, adjusting their performances accordingly. One of the upshots of this new temporal framework, as argued in Chapter Six, is that BWCs are able to provide their users with a form of reputational and professional security. Officers spoke of BWCs "saving their asses", this appeared to refer not to physical harms, but instead, from the potential stress and anxiety associated with unwanted or 'hostile' complaints, and from other video footage which might portray them in a negative light. Recalling that BWCs are argued by some to reduce complaints (White and Malm, 2020), what this enactment of the BWC reveals is that the picture is, in fact, more complex; even in the eventuality of a complaint, the way it is experienced by the officer is different with a BWC. This chimes with Brucato's framing of BWCs as a '*counter-sousveillance* technology' (2015, p. 470 emphasis in original), but shifts the emphasis regarding sousveillance and its implications for legitimacy from the organisation towards the individual. Recalling Gates' suggestion, as noted in Chapter Two, that she wouldn't be surprised if officers developed 'close connection[s]' (2016, p. 417) to BWCs, my observations in Fritton not only suggest that this is the case, but also offer suggestions as to the reason why. Namely, because the device might protect your reputation and your job. BWCs seem to protect the police, at both an institutional and an individual level, from a risk to legitimacy, the connection between BWCs and TASER being another example of this dynamic. It is worth noting that this perception of a BWC as personal protective equipment is reflected in the officer's suggestion regarding the introduction of live streaming to BWCs as a safety feature, discussed in Chapter Seven.

The second, and in many ways linked, enactment of the BWC that I observed, suggests that despite the split between BWCs and TASER, and the migration of the camera from the butt of the TASER onto the body, the two devices are deeply linked.[4] At an organisational level, BWCs make TASER use viable for police in England and Wales. Certainly, it is hard to imagine such widespread use of TASER devices without BWCs. The officers I spoke to in Fritton discussed BWCs and TASER as 'a package' and the incident described in Chapter Six – particularly how footage was reviewed and used the aftermath of TASER being drawn – certainly seemed to evidence this. Drawing on Barry's (2001) definition of technology as 'any kind of association of devices, techniques, skills or artefacts which is intended to perform a particular task' (2001, p. 7), I suggested that TASER and BWC devices might conceivably be considered as one singular technology. A technology that allows police organisations to manage the demands of policing a technological and post-austerity society, characterised by conditions of the new visibility (Thompson, 2005; Goldsmith, 2010) and a lack of resources, increased demand, and growing concern around officer safety (*The Guardian*, 2019a). For the police in England and Wales who, by and large, do not carry firearms, this is arguably a new model of policing and one which may well test their legitimacy.

The ability to use BWC footage to review and replay events in ways previously described was central to the third

[4] As discussed in Chapter One, the origins of can be traced to TASER CAM (an innovation in the TASER product line).

enactment of the BWC that I observed, one which also has links to austerity. Here, BWCs and the footage they produce appeared to be being used by officers to 'fold time' in order to support a conception of their role as crime fighters and figures of authority. BWCs, against a backdrop of administrative work, seemingly provided a way for officers to remind themselves of what they understood 'real' police work to be. Footage 'imported' drama and action into environments that seemed to be at odds with what they saw their role consisting of, and functioned as an antidote to paperwork.[5] This enactment further underscores the claim made in Chapter Six that, following ANT, police culture can be conceived, not as an end in and of itself, but rather the outcome of an association of actors (Campbell, 2021). Interestingly, as well as being used to reinforce an idea of 'real' police work, the footage also seemed to be being used to reinforce ideas of what 'good' police work consisted of too. This was evidenced by both colleagues and the sergeant reviewing and giving feedback on the officers' performances. As noted in Chapter Six, this collective viewing of footage too, focused heavily on the issue of officer safety, for instance officers pointing out various risks in the footage, such as knives. But it also involved the officers praising each other's calmness and cool headedness, and using of humour to defuse stressful situations. Although the potential for BWCs to be used in training has been discussed (Phelps *et al.*, 2016), the use of BWCs in these kind of informal discussions around police practice appears to be an under-researched area, not to mention the psychological impacts of reviewing dangerous or traumatic footage on a regular basis. What this research, and its finding that BWCs are enacted in multiple ways, shows, is that more research is needed. The various enactments, described above, deserve further and more detailed attention. Future research (of various kinds) might examine any of the enactments discussed in more detail, or it might look for more ways in which the technology is used.

Before moving on, what does the above mean for how we think about the BWC, police visibility, and ideas of police accountability and legitimacy? And how does it relate to some of the findings, identified in chapters Five and Seven, relating to making and speculation. Firstly, it shows that the BWC has quickly become an important actor in a range of policing scenarios. My research discusses three enactments, there are undoubtedly more. As one officer put it, BWCs were like an octopus. With more research more of these enactments can be traced and understood. The above also shows us that police visibility has changed profoundly, and in ways we are only beginning to understand the implications of. Since 1829 and the formal conception of an organised police, the visibility of the police has never been static. From face-to-face interaction and visibility in co-presence on the streets, to a mediated but largely controlled visibility via the news media and television, and later new visibility produced by citizen generated content and CCTV, the ability of the police to control the facts and control the narrative has become harder and more complex. In many respects the multiplication of realities has shown that 'the facts' are hard to come by. As noted in the previous section, and will be returned to again below, contemporary policing exists in an age of ontological insecurity and uncertainty. In terms of legitimacy, policing in England and Wales has been described as being in crisis (*The Guardian*, 2022), with six forces – one being the Metropolitan Police Service, the largest force in England and Wales, whose trust is at an all-time low (Talora, 2022) – now in special measures. The reasons for this are of course multifaceted, but it is certainly the case that the increase in police visibility has played a key role. The optimism that BWCs might restore public trust by making the police more transparent, and as a result, more accountable seems certainly to have eroded. The relationship that BWCs have with these ideas of

[5] This enactment of the BWC echoes, in many respects, Holdaway's discussion of the how he observed the motorcar and police radios being used to 'maximise excitement' (1983, p. 55).

accountability and transparency is complex. Indeed, BWCs *have*, in some instances, been used to hold officers to account (*BBC News*, 2022), however, as discussed above, it would also appear that BWCs are used to protect the police against complaints, signalling an avoidance of accountability (Brucato, 2015). This is not to say that BWCs won't ever be enacted in ways to make the police more accountable, just that, to use terms from ANT, in their current 'composition' with other 'actors', BWCs appear to protect the police rather than hold them to account.

8.4 – Multiplicity & The Future of BWCs and Policing

As the previous section describes, this thesis has introduced the idea of ontological multiplicity to policing. Some might argue that policing has little to do with a philosophical idea which claims first, that reality is enacted, second, that as a result realities multiply (Mol, 2002), and third, that subsequently there is 'no real 'reality' that lies behind these enactments' (Michael, 2016, p. 161). Policing requires facts, and consequently we might not be surprised that it turns to functionalist and positivist criminologies. But policing needs more than positivism. As was established in Chapter Three, policing involves various, often competing, realities. It is about being tough, no-nonsense, and fighting crime, whilst at the same time being about compassion, complexity, and paperwork of course. It is about drama but it is also about boredom. It is about statistics but crucially it is also about stories. Policing's technologies too are not thin (Savoie *et al.*, 2017), instead they are thick, loosely bounded, and work in multiple ways (de Laet and Mol, 2000). Research that can account for multiple realities is, in many ways, of vital importance in such a context. In this final section, I will discuss the significance and implications of ontological multiplicity to both how we think about the police BWC but also other police technologies, and to policing more broadly. In doing so, the section will address the future of this research (and research like it), considering how it and its findings might be communicated, applied, put into practice, and what it might mean to do so.

If a BWC has multiple realities, we see that one of these has gained much more attention than others, at least from researchers. Research has, on the whole, conceived of the BWC as a thin object (Savoie *et al.*, 2017), focusing on BWCs only as tools that just function to reduce use-of-force incidents and violence towards police officers. As the previous section described, this research has shown that BWCs are enacted in other ways and that they have other realities. These realities have been largely ignored and more research is required to understand the implications of them. Future research could (and should) begin to examine these implications in more detail. What this also means, of course, is that other objects need attention too; if a BWC has multiple realities, then why not other police technologies? A similar approach, drawing on design, criminology, and STS might be applied to a whole host of policing technologies, for instance, police radios, police uniform, TASER, cars, or personal computers. Further research that accounts for the role of technologies in the construction of policing's social realities is, surely, urgently needed.

In the years since this research began, technology has continued to play increasing role in policing and in the way day-to-day policing duties are conducted. A number of notable developments have taken place, for instance, the further expansion of TASER use (Dodd, 2022), and the emergence of live streaming from BWCs, by West Midlands Police (Mackie, 2022). More research that considers the implications of such developments is perhaps more urgent than ever. Various new technologies have also been trailed, for example, 'Live Facial Recognition' (LFR) technology in London, sparking heated debate about the ethics of such technology in democratic societies (Gayle, 2020). There seems to be a greater recognition that the internet now plays an increasingly significant role in how social life is

lived, and the police (both in England and Wales and internationally) have become increasingly sophisticated and experimental in their use of social media (Bullock, 2018; Hesketh and Williams, 2017; Wood and McGovern, 2021), introducing a new space where the police are visible.[6] Citizen-generated content continues to play an increasing role in policing (especially traffic policing), with a number of forces now offering online portals for the submission of evidence from citizens. Simultaneously there has been a growth in so called 'Auditing', the practice of filming police, police stations and other government buildings by members of the public (Brinkworth, 2021). The various technologies listed here too, undoubtedly, do more than we presently think, they too will be enacted in multiple ways and be associated with other actors. Needless to say, they also require further analysis and thought.

Trying to understand the multiple realities of policing technologies is perhaps especially important for the police in England and Wales, who do so by consent. Put simply, it is hard to consent to a technology that we don't understand or can't comprehend. For democratic and consensual policing, not only do we need to understand such technologies, we need to find new ways of telling about them (Becker, 2007). Nold argues, 'design led approaches have the potential not only to help us understand but also to intervene in public controversies about science and technology' (2018, p. 95). As noted in Chapter Five, Nold describes how the things produced in his research were 'responsive to the issue itself' (2018, p. 105) rather than to a client. These objects, he says, functioned as material-semiotic devices that were both concepts, but also, critically, things, and are able to 'stack ontologies' (2018). Ward and Wilkie, similarly, talk of '[considering] designers as material-semiotic storytellers' (2008, p. 5) who can make propositions about futures. This project has experimented with how knowledge is produced and the forms that it might take, and also with how it communicates ideas, as discussed in chapters Five and Seven. The outcomes of making (the book, the scripts, and the alternative and homemade BWCs) were used as research technologies to engender specific conversations and produce insights into the officers' use of BWCs. This involved communicating and explaining ideas to them in novel ways. Jungnickel says that [s]ocial science's continued impact and relevance relies on not only what it says but also how it tells stories. (2018, p. 501). Elsewhere she describes 'transmissions' as, 'the tactical combination of *making* (how theory, methods and data give shape to research) and *communicating* (how we show, share, and entangle others in it)' (2020, p. 2), she says that we can 'consider how research travels, where it goes, and who and what is invited' (2020, p. 3). Certainly, a future possibility for this research and its various products, will be to consider how they might be taken in search of new publics. The various research technologies produced could certainly be used with other groups (senior police officers, designers at Axon, citizens who have been recorded on BWCs, to name but a few). Some of them could be developed further too. The scripts, although a failure in the field, were a useful way to present and consider fieldnotes. This script, and the ideas involved, certainly invite performance, they might be used to communicate the research findings in new ways. All of this raises the question as to if research is ever 'finished'. With more time and with continued access to research participants, an ongoing cycle of making, observation, and speculation could take place with the production of new research technologies designed to test the ideas and findings of previous research visits. This project can, therefore, be thought of as a template for future research, one which examines the implications of designs on crime and its control. It is also a call for more work at the juncture of design, criminology, and science and technology studies.

[6] It is worth highlighting that despite some experimental use of social media, the police, on the whole, remain conservative in how they use this technology, in many ways echoing the use of newspapers in the late 1800s, as noted in Chapter Three.

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Appendices

Appendix One – Statement of Ethics Produced June 2018

Statement of Ethics

Thomas Marriott **June 2018**

General Overview:
The following document outlines how research ethics will be managed in relation to the PhD research project: Video Witnesses: Developing New Design Methods for Understanding Police Public Encounters in the Age of Mass Image Production. The project is interdisciplinary by nature, as such, co-supervision has been sought from outside the Department of Design. Kat Jungnickel and Jennifer Fleetwood both from the Department of Sociology have experience in surveillance studies and criminology respectively. They will provide necessary expertise from the social sciences in conducting research of this nature especially regarding how associated ethical risks are managed. This document draws inspiration from both the UK Research Integrity Office's Code of Practice for Research7 Goldsmiths Research Ethics Guide and British Society of Criminology Statement of Ethics8 and refers to the Arts and Humanities Research Council's Studentship Grants Terms & Conditions and Guidance.9

Project Outline:
The proposed project seeks to investigate how police-public encounters are transformed as a result of the introduction of personal video recording devices specifically, Body Worn Video (BWV) cameras used by the police and smartphones used by members of the public. In order to achieve this, a range of novel design methodologies will be developed and deployed in order to examine the 'social practice of filmmaking' revealing the social, cultural and political forces embedded within the technologies and their associated procedures.

Proposed Research Methods:
The proposed method will involve participatory design workshops that facilitate and focus discussion around specific topics relating to the police-public encounter (for more information on workshops see below). Through the process of production and analysis, a rich and focused conversation will encourage participants to develop and articulate their own positions and opinions. These conversations will be recorded and workshop outcomes collected providing a bulk of data to be analysed.

For a further information on research methods please refer to the section: 'Research Design' in original proposal.

Notes on Workshops:
The proposed method for engaging with respondents and for the production and collection of research data is through a series of participatory design workshops. Outlined below is a brief practical description these workshops and clarification of what they will and will not involve.

- Workshop refers to an organised meeting between 2 or more participants, never one on one (ideally groups of arpx 7/8) composed of a mixture of police and public lasting for around 3 hours.
- They will not involve participants who are very old, under that age of 18, or who are vulnerable and will take place on campus at Goldsmiths or in an alternative neutral space.
- Informed consent will be gained prior to conducting workshops.
- Workshops will have a clear beginning and end. This will be highlighted with briefing and debriefing sessions.
    - Briefing will remind participants of the aims of the workshop and how to minimise risks and harm to themselves and others (for more information see: 'Section :1 Harm').

[7] http://ukrio.org/wp-content/uploads/UKRIO-Code-of-Practice-for-Research.pdf

[8] http://www.britsoccrim.org/documents/BSCEthics2015.pdf

[9] https://ahrc.ukri.org/documents/guides/studentship-grants-terms-conditions-and-guidance/

    - Debriefing will give participants a chance to ask more questions about the research and what will happen to the data and any recordings made. It will also be an opportunity to address anything unexpected that happened during the workshop.
- Workshops will use a range of design methods, including but not limited to: filmmaking and editing, drawing, and performance, these will be used to focus and direct conversation around research themes.
- Workshops will not involve watching any evidence in the form of video footage or stills. Specific cases or instances of malpractice or criminal activity will be avoided (see: Section 2: Consent for more information).

Under the following headers I will outline how research ethics will be managed for the project. Under each I will outline and discuss what practices and safeguards will put in place in order to protect, myself, participants and associated institutions.

- Harm
- Consent
- Confidentiality

The document will conclude with some comments regarding ethics and practice-based research.

Section 1: Harm

Identifying and ameliorating the potential for harm, be that physical, emotional, or professional, is a major concern whilst conducting the research. The following considerations mean that expected potential risk for harm when conducting this project is low.

- Workshops will take place, either on the Goldsmiths campus or in another neutral safe pre-booked space, it is not anticipated for workshops to take place in an official building (school, office etc.) other than Goldsmiths.
- All relevant fire and health and safety will be taken into account and practiced, participants will be made aware of escape routes etc.
- Workshops will focus around discussion it is very unlikely they will involve any strenuous or high risk activities. In order to minimise risks further risk assessments will be conducted before conducting workshops.
- The potential for emotional harm will be minimised by insuring that discussions refrain from touching on specific cases and examples, and that conversation is guided away from recalling of any distressing a traumatic experiences.
- The potential for professional harm or loss of integrity will be reduced by avoiding discussion of specific cases or discussing malpractice, participants will be reminded of this during the workshop briefing conducted at the start of each workshop.
- In the very unlikely event the workshop or discussion touches on, or highlights the potential for a participant to be put in any physical, emotional or professional risk, appropriate steps will of course be taken, for example, talking to a superior, authorities or a councillor.
- During a debriefing session participants will be reminded that they can raise any concerns relating to their own or others safety, and that this can be done in private.

Section 2 : Consent

One of the goals of the research is that the workshops will facilitate active participation, and that through this discussion participants will be able to to discuss and develop their own thoughts and opinions relating to the police-public encounter. As such It is not only an obligation that participants are informed of the purposes and the aims of the project when agreeing to take part, but also practical requirement of the project.

- Participants will be clearly informed of the goals of the research, and aims of specific workshop activities. This will be communicated in an appropriate format either in text and/or verbally prior to each workshop comensing.
- Consent will be confirmed before each workshop during a specific briefing session.

- Consent will be confirmed using signed a consent form these will be periodically reviewed throughout the project, in order to insure that participants consent is up to date and appropriate for specific workshop activities.
- Separate consent forms will be collected for the following:
    - General participation in the workshops.
    - Agreeing to be filmed.
    - Agreeing to publication and dissemination (release form).
- Participants will have an opportunity to view and give feedback on any media or outcomes involving their image or opinions prior to any dissemination or screenings. This will be achieved using a password protected online stream, any necessary changes or edits can then be made prior to a general release.

Section 3 : Confidentiality

The security and confidentiality of personal data belonging to the participants of the project is a key concern and also goes some way in further reducing the potential for harm to participants. Ensuring that effective systems are put in place to maintain confidentiality and ensure that data is secure and will allow participants to talk freely thus securing more meaningful data.

It should be noted at this point that no evidential data relating to specific cases or crimes will be collected or stored. That said, due the nature of the project there is a possibility that parties might try to gain access to data, mistakenly believing it to be evidential. As such security measures will be diligently met and upheld.

The following steps and safeguards will ensure the security and confidentiality of data:

- Research data will be kept on a password protected locally stored drive.
- It is not anticipated that I will frequently need to travel with personal data belonging to participants. In instances when it is unavoidable all data will be removed from cameras and laptops and stored on a password protected drive which will be kept on my person.
- Research data in physical form will be securely managed, kept in a locked filing cabinet on site at Goldsmiths.
- Data will be kept intact and securely stored in line with AHRC and Goldsmiths guidelines after the completion of the project.
- If research data is to be destroyed or deleted, this will be done with utmost care in order to secure the confidentiality and security of participants personal data.
- Prior to conducting workshops, their specific design will be reviewed in order that data is accurately and efficiently recorded and that it is stored in a secure and accessible form.
- The topics of conversation are not expected to be high risk and as such filming workshops is appropriate, however, pseudonyms will be used to protect participants identities.

Ethical implications of Practice-based Research

There are a number of ethical issues relating to practice-based research that are especially pertinent to the fields of Art and Design. These include but are not limited to the topics of ‘academic integrity’ and ‘responsibilities to the discipline’. Some of my commitments in relation to practice-based research are outlined below:

- One of the aims of the research is to produce new methods for design to engage with filmmaking practices. During the development of these, methodologies might be obscure or perhaps incomplete in order to assist discussion and peer review diagrams and ‘process maps’ will be utilized in order to articulate methodologies as clearly as possible.
- The proposed project is interdisciplinary, and spans the departments of Design and Sociology, I will endeavour to make all appropriate research findings available to relevant departments.

Appendix Two – Risk Assessment

Research Fieldwork – Risk Assessment

Thomas Marriott – Sept 2019
Goldsmiths University of London – Department of Design

Activity: Fieldwork visit to [redacted] Constabulary.

Location: Throughout [redacted] Constabulary.

Brief description of activity or fieldwork to be undertaken: Research visit to [redacted] police between 14th and 21st of October 2019 for the purpose of conducting fieldwork. The research is concerned with police use of body-worn video cameras and will involve observing police officers during active patrol duties and will also involve the use of unstructured interviews during 'down-time'.

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1. Travel Hazards

1.1. Risk of injuries and ill health caused by inadequate and or inappropriate arrangements to minimise hazards associated with travelling in 'students' own car to and from [redacted] Constabulary.

Initial Risk Rating: Medium
Control measures:
- Ensure that all relevant and proper vehicle insurance is obtained prior to the trip

Residual Risk Rating: Low

1.2. Risk of financial loss caused by inadequate and or inappropriate arrangements to minimise hazards associated with travelling in 'students' own car to and from [redacted] Constabulary.

Initial Risk Rating: Medium
Control measures:
- Undertake a rudimentary vehicle safety checked for safety prior to travel.
- Necessary rest taken prior to travel, and as and when needed during journey.

Residual Risk Rating: Low

2. Accommodation Hazards

2.1. Risk of injuries and ill health caused by inadequate and or inappropriate arrangements to minimise hazards associated with accommodation whilst visiting [redacted] Constabulary such as fire.
Initial Risk Rating: Medium
Control measures:
- The student will ensure that a reputable hotel is booked for the trip.
- The student making themselves familiar with the fire exits and evacuation procedure upon arrival.

Residual Risk Rating: Low

3. Medical Hazards

3.1. Risk of injuries and ill health caused by inadequate and or inappropriate arrangements to minimise hazards associated with any previous medical condition and/or injury.

Initial Risk Rating: Medium
Control measures:
- The student will disclose to [redacted] Constabulary all pre-existing medical conditions and/or injuries that may put themselves or any others at risk from their participation in the research.
- In the eventuality that the student becomes unwell during the research the escorting officer will be made aware.

Residual Risk Rating: Low

4. Unfamiliarity & Supervision Hazards

4.1. Risk of injuries and ill health caused by inadequate and or inappropriate arrangements to minimise hazards associated with unfamiliarity with environment, practices and activities and the supervision of the student whilst observing such activities.

Initial Risk Rating: High
Control measures:
- Prior to observing officers undertaking active police work the student will be briefed by the escorting officer.
- The student will be under constant supervision by the escorting officer at all times.
- The student will follow all instructions/directions given by the escorting officer.
- The purpose of the research visit is to observe police work, the student will ensure that they remain at a safe distance from activities that could potentially be dangerous or high risk.
- The student will wear a high-visibility vest/jacket at all times.
- The student will not be asked to or volunteer to get involved in any police operations or services.

Residual Risk Rating: Low

5. Work Equipment & Vehicle Hazards

5.1. Risk of injuries and ill health caused by inadequate and or inappropriate arrangements to minimise hazards associated with police work equipment or vehicles.
Initial Risk Rating: High
Control measures:
- The student will not use or operate any items of [redacted] Constabulary work equipment or machinery.
- Under no circumstances will the student will not drive any police vehicle.

Residual Risk Rating: Low

6. Public Highways Hazards

6.1. Risk of injuries and ill health caused by inadequate and or inappropriate arrangements to minimise hazards associated with working on or near the public highway.
Initial Risk Rating: High
Control measures:
- The student will remain in the police vehicle until they are invited to leave it by the escorting officer.
- The student will wear a high-visibility vest/jacket at all times.
- The student will follow all instructions/directions given by the escorting officer.

Residual Risk Rating: Low

7. Working Time Hazards

7.1. Risk of injuries and ill health caused by inadequate and or inappropriate arrangements to minimise hazards associated with working time.
Initial Risk Rating: Medium
Control measures:
- The student will work within requirements of the H&S Working Time Regulations 1998.

Residual Risk Rating: Low

8. <u>Conduct & Dress Code Hazards</u>

8.1. Risk of injuries and ill health caused by inadequate and or inappropriate arrangements to minimise hazards associated with students conduct and dress code.

Initial Risk Rating: Medium

Control measures:

- The student will conduct themselves in a manner that is appropriate and in keeping with the standards expected from a professional organisation.
- The student will ensure that they wear clothing and footwear for the conditions and the task that they are observing.
- The student will wear a high-visibility vest/jacket at all times.

Residual Risk Rating: Low

9. <u>Involvement in Operational Activities Hazards</u>

9.1. Risk of injuries and ill health caused by inadequate and or inappropriate arrangements to minimise hazards associated with.

Initial Risk Rating: High

Control measures:

- The student will not participate in any operational activities.
- The student will be under constant supervision by the escorting officer at all times.
- The purpose of the research visit is to observe police work, the student will ensure that they remain at a safe distance from activities that could potentially be dangerous or high risk.
- The student will not volunteer to get involved with any police operations or services.

Residual Risk Rating: Low

10. <u>Trauma Hazards</u>

10.1. Risk of injuries and ill health caused by inadequate and or inappropriate arrangements to minimise hazards associated with direct or indirect exposure to traumatic incidents.

Initial Risk Rating: Medium

Control measures:

- The escorting officer will notify dispatch that they have an observer with them, and the student will not attend especially traumatic instances.
- In the unlikely event that the student is witness to a traumatic event this will be dealt with on a case by case basis and necessary support will be sought.

Residual Risk Rating: Low

11. Confidentiality Hazards

11.1. Risks caused by inadequate and or inappropriate arrangements to minimise hazards associated with the confidentiality of subjects of the research.

Initial Risk Rating: High

Control measures:

- The purpose of the research is to observe police use of police body-worn video cameras.
- The student will ensure that all escorting officers are aware of the purposes of the research, that any research data will be anonymised and that they have the right to refuse to participate or withdraw from the research at any time
- The student will complete a signed confidentiality agreement which will be submitted to [redacted] prior to commencing research.
- The student will undergo vetting by [redacted] Constabulary prior to commencing research.

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Declaration

Student: Thomas Marriott

Signature:

First Supervisor: Matt Ward

Signature:

Second Supervisor: Jennifer Fleetwood

Signature:

‘Knives Out’ Script Based on Observational Fieldwork in Fritton 2019

INT. RESPONSE CAR - NIGHT

GEORGE and JULES are in the police response car driving around one of Fritton’s many roundabouts. GEORGE is finishing a McDonald’s burger. Over their radios a mixture of chatter can be heard.

COMMS OFFICER
Any units free? 432 you still stat 4?

JULES
(to GEORGE)
You done?

GEORGE
(whilst chewing)
Ha, Yeh all good.

JULES
554. We’re available.

COMMS OFFICER
Are you TASER equipped 432?

GEORGE
Yes yes.

COMMS OFFICER
(calmly)
Report of an ongoing domestic on Longstaff Road. Neighbour has called can hear lots of shouting and banging. Apparently he’s been threatening to kill himself. Oh, and he’s got knives.

GEORGE
We’ll go!

JULES
Code zero?

COMMS OFFICER
Yes. Yes. It’s 82 Longstaff.

GEORGE
(to JULES)
Sounds like a decent job this!

JULES pulls into the outside lane of the dual carriageway, turns on the sirens and floors the car. The response car screeches around the corner of Longstaff Road. JULES turns off the sirens. The street is quiet and empty. Cars are parked on the road in front of the gardens. JULES and GEORGE begin to count the house numbers.

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GEORGE
82 right?

JULES
Yeah... 13-15-17. It'll be your side mate.

GEORGE
Right down at the end then.

JULES accelerates quickly and turns on the car's passenger sidelight illuminating the houses on GEORGES side of the car.

GEORGE
76. 78. 80. 82. Here we are! The one with the door open.

JULES parks the car on the street in front of the house and they both get out. They turn on their body-worn video cameras.

GEORGE
(into radio)
432. Were stat six. Time is 2-2-0-8 hours.

JULES
(into body-worn video)
Arrived at 82 Longstaff road - the time is 2-2-0-8 hours.

JULES and GEORGE walk up the path towards the house. The door is partly open and the sound of THE MAN shouting can be heard. GEORGE carefully opens the door.

INT. HOUSE - NIGHT

JULES and GEORGE enter the house. DEL is crying hysterically and is standing next to THE MAN who is topless in the kitchen at the end of a long hallway holding two kitchen knives, one in each hand, above his head.

THE MAN
(aggressively)
Oh here we go. Here we Fucking DEL. The Fucking police. You've called the fucking police. For nothing. Fuck you DEL. FUCK YOU. FUCK YOU ALL. FUCK OFF.

JULES
(loudly)
PUT THE KNIVES DOWN NOW.

THE MAN
FUCK YOU. FUCK OFF. I'M GONNA
FUCKING KILL MYSELF.

DEL
(though hysterical tears)
Oh my god.Oh my god. He keeps
saying he wants to kill himself.

JULES
(Louder still)
PUT. THE. KNIVES. DOWN. NOW.

GEORGE
(into radio)
Assistance needed NOW!

JULES removes her TASER from the TASER branded pouch on the front of her body armour.

JULES
SIR, IF YOU DON'T PUT THE KNIVES
DOWN NOW I'M GOING TO TASER YOU.

THE MAN continues to shout and wave the knives above his head. JULES points TASER at THE MAN, two red dots appear on his chest and leg. DEL quickly moves in front of THE MAN.

JULES
T..

DEL
No, no, TASER.

JULES
Whoa!

DEL manages to take the knives, and drops them to the floor.

JULES
Keep your hands up and turn round
and put them on the wall.

THE MAN puts his hands on the wall. DEL falls to the floor and cries hysterically. GEORGE moves swiftly towards THE MAN and cuffs his hands behind his back.

THE MAN
Fuck you DEL. fuck you all. I'm

gonna kill my self. Fuck you.
Fuck you. Fuck you. Fuck you. I
can't believe you called the
police for this, you bitch.

DEL
I didn't...

THE MAN
Well who did then DEL? Who fucking did.

GEORGE
She didn't call. Can you stand still please for me mate.

Both officers are holding THE MAN against the wall. THE MAN struggles and shoves JULES with his shoulder. GEORGE pushes him into the wall pressing the handcuffs into the small of his back. THE MAN relaxes and urinates on JULES' leg which is pinning his to the wall.

THE MAN
You don't need to push me around like that.

GEORGE
I do cos I've asked you to stand still and you've started to kick off.

THE MAN who starts to headbutt the wall. GEORGE holds his head against the wall with his hand. Two other officers JON and NICK arrive. DEL goes out to the street.

EXT. THE FRONT GARDEN - NIGHT

JON takes over restraining THE MAN from GEORGE who follows DEL out into the street.

DEL
He needs sectioning. He's a danger to himself.

GEORGE
I can't do that. We're arresting him now and taking him down to Bushey.

DEL
And he'll just get let out tomorrow and we're back to square one!

GEORGE
I can't section him unfortunately, he's in his own house. Has he

taken anything tonight? He reeks of booze. How much has he had?

DEL
He's been drinking all day, probably most of a big bottle of vodka. He's been mixing up his medication too.

GEORGE
Mixing it up?

DEL
Taking none, and then taking loads the next day.

GEORGE
Right okay. And he's not been violent to you - you're not hurt?

DEL
No. No. I don't think he would. He's just trying to hurt himself. It's been going on all afternoon. Saying he's going to kill himself.

GEORGE
Right okay. Obviously it's very tough. He's gonna need some help.

A police van arrives outside. SARGE gets out and walks slowly over to the house. Near the police van THE MAN is searched and his belongings are put into an evidence bag. NICK brings over a T-shirt for THE MAN.

JULES
Right sir. I need you to step up into the van.

THE MAN
Fuck you.

SARGE
Charming.

JULES
I'd step up or the boss is going to throw you in.

THE MAN
I can do it myself.

The man takes his time and slowly gets into the van. GEORGE puts him into the cage at the back of the vehicle.

SARGE

You coming with GEORGE? Was it
Your arrest or JULES?

GEORGE
Mine SARGE. I'll come with. Think
I'll have to go in the back with
Mr Loud!

INT. POLICE VAN - NIGHT

The police van pulls out from the drive where it is parked and makes its way through the quiet estate towards the dual carriageway and the motorway. SARGE is driving and GEORGE is in the back restraining THE MAN who is trying to headbutt the cage.

GEORGE
How's the traffic on the motorway
tonight SARGE?

SARGE
Wasn't too bad earlier. Shouldn't
take more than 25 mins at this
time.

GEORGE
Me and NICK sat in traffic for
45mins last week.

The police van pulls onto the motorway. THE MAN continues to shout and swear.

INT. POLICE CUSTODY - NIGHT

The police van pulls into the yard of the police custody building. There are bright lights illuminating the newly built complex. SARGE taps his ID card and the roller shutter opens. The van drives forward into a large room and the roller shutter closes behind it. SARGE walks round to the back and opens the tailgate so GEORGE and THE MAN can get out.

GEORGE
Out you get then bud.

THE MAN
I'm getting out.

GEORGE
C'mon then.

THE MAN
I am.

THE CUSTODY SERGEANT
(with raised eyebrows)
Really. You're joking.

THE CUSTODY SERGEANT continues to take details from THE MAN typing them into the computer.

THE CUSTODY SERGEANT
Have you taken anything?

THE MAN
Antidepressants. You know this is the second time I've been arrested in my life? Twice in a fucking week. And you lot are all shit. Wankers. Fucking wankerrs the lot of you.

THE CUSTODY SERGEANT
(bored)
Right. D'you know what type of Antidepressants?

THE MAN
Xanax

THE CUSTODY SERGEANT
Anyone know how that's spelt? With a Z? Z-X-A-N-E-X? Is that it?

GEORGE
No idea.

That'll do. Why hasn't he got shoes on?

GEORGE
He didn't want any apparently.

THE CUSTODY SERGEANT
Fair. Enough.

After his details are recorded THE MAN signs on a small electronic pad. He is then led away to have his prints, and photo taken. As this is done GEORGE and SARGE stand around joking with THE CUSTODY SERGEANT. GEORGE AND SARGE return back to the van and back down the motorway and to the nic.

INT. POLICE STATION - NIGHT

GEORGE and JULES remove their radios and body-worn video cameras from their body armour. They plug their laptops into large computer monitors, and plug the cameras in to the laptops in order to begin their admin work. NICK and JON are also working at desks in the next row. JULES is scrubbing through footage from her body-worn camera using her index

finger carefully on the laptops trackpad. In her ear are some cheap earbuds from her mobile phone. As she goes she pauses
(more)
(contd)
the footage and makes notes of the time on the video's timestamp.

JULES
22-0-8 arrive. 22-10 arrest made.

GEORGE swings round on the office chair and looks over at the screen JULES is using.

GEORGE
Let's see the bit where you red-dotted him then JULES. JON NICK come and have a look at this.

NICK, JON, ROSIE and a number of other officers in the station crowd round the screen and watch the footage from JULES body-worn video camera back.

JON
Yeah I wanna see what happened before we got there!

ROSIE
I'm pretty sure Karl nicked him earlier in the week? He don't look well, does he. Shit, look at them.

NICK
Whoa. Bloody hell. Shit, when she steps in front!

JON
God. Look at all the knives to the side of him.

GEORGE
Her voice! She's like 'whoooooaaaa'!

JULES
I wasn't expecting her to step in front. To be fair. Yeah if she hadn't taken them off him I'd have probably done it.

NICK
Whoa. Bloody hell. Shit, when she steps in front!

JON
(joking)

So when did you get pissed on then Jules?

After a little while SARGE stands up from his desk in the corner of the room and walks over to take a look at the screen.

SARGE
Lets see it again from the start.

With her finger on the trackpad, JULES scrubbs back to the start of the clip, presses play, and the group watch it over again.

SARGE
Nah, you did the right thing there JULES. Good work both of you.

GEORGE
Cheers Sarge.

GEORGE
We've not got all day.

THE MAN with his hands handcuffed behind him stands on the vans tailgate bouncing up and down pretending to jump down from the van.

SARGE
DOWN. NOW.

THE MAN
Haha. For God's sake.

THE MAN steps down from the van and is led through a number of study doors and brightly lit beige corridors. THE CUSTODY SERGEANT is sitting behind a long curved raised counter. To his side are 4 empty desks. Behind THE CUSTODY SERGEANT other custody staff are sitting looking at computer screens. Police officers are standing chatting in the corner, and a solicitor in a tired suit is slumped on the far end of the counter playing with an empty cup of coffee.

GEORGE
(excited)
Alright sarge!

THE CUSTODY SERGEANT
Hello George!
(to SARGE)
Alright mate.

SARGE
(nodding)
alright.

THE CUSTODY SERGEANT
(rubbing his eyes)
Ergh. todays been mental. Just none stop all day, and it's just me. Right, what's he in for then?

THE MAN
(loudly)
You can let go of me now you fucking prick. Fuck you.

GEORGE
As you might be able to tell he's quite LOUD.

THE CUSTODY SERGEANT
So what's he in for George?

GEORGE
He's in for affray.