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Linking the carceral and the punitive state: Researching prison architecture, design, technology and the lived experience of carceral space

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Abstract
Despite longstanding implicit recognition of the significance of prison space, which can be traced back at least as far as Bentham’s (1791) notion that prisoner reform and wellbeing are achieved in part by a 'simple idea in architecture', prison architecture, design and technology (ADT) remain under-researched and poorly theorized. This paper reviews some of the literature on carceral space, principally from human geography, but also from criminology and environmental psychology. It poses questions which point to the pertinence of research into prison design at a critical juncture in penal policy in the UK, as the Ministry of Justice rolls out a 'new for old' policy, closing down six historic prisons, partially closing three other sites, and commissioning new, large custodial facilities which appear to represent a return to previously shelved plans for warehouse-style 'Titan' prisons. This paper argues that carceral geography's concern for the lived experience of spaces of imprisonment can provide a unique and insightful perspective on this critical area of scholarship, and suggests new areas for future research.

Keywords: Prison architecture and design; carceral geography; carceral spaces.

Introduction
Prison design is crucial to the understanding of carceral space, in that it is the process which determines, in large part, how the goals of a criminal justice system are materially expressed and experienced. As Wener has argued:

jails and prisons represent more than just warehouses of bed space for arrested or convicted men and women. They are more complicated environments than just good or bad, comfortable or not. The design of a jail or prison is critically related to the philosophy of the institution, or maybe even of the entire criminal justice system. It is the physical manifestation of a society's goals and
approaches for dealing with arrested and/or convicted men and women, and it is a stage for acting out plans and programs for their addressing their future (2012, 7).

With Wener's proposition in mind, this paper begins to explore the ways in which an understanding of prison design could enable better understanding of the lived experience of carceral spaces and offer a starting point for future research in human geography. The paper first outlines the recent development of carceral geography, before considering the nature of carceral spaces in relation to prison design, particularly in the UK context, and posing a series of questions which could shape the contours of future work in this field.

Carceral Geography

Carceral geography is an emergent and vibrant field of geographical research concerned with the spaces and practices of incarceration. The field is informed by and in dialogue with the work of Goffman (1961) on the ‘total institution’, Foucault (1979) on the development of the prison, surveillance and the regulation of space and docility of bodies, Agamben (1998, 2005) on spaces of exception, de Certeau (1984) on the strategies of the (relatively) powerless when occupying and moving through controlled spaces, and theories of liminality (Van Gennep 1960) and mobility (see, for example, Moran et al 2011, 2013a). It is also, of course, informed by much longer-standing academic engagements with incarceration, namely criminology and prison sociology, and in particular with these disciplines' increasing concern for an understanding of prison space (Jewkes & Johnston, 2007, Hancock & Jewkes, 2011). Previously the primary focus within criminological prison studies has been on prison time: for example, there have been longitudinal studies of imprisonment rates, levels of overcrowding and prisoner welfare (e.g. Jacobs & Helms 1996, Stucky et al 2005), analyses of individual prisoners’ experiences of adjustment to the temporal rhythms and restrictions of incarceration (e.g. Warren et al 2004, Thompson & Loper 2005), discussions which focus on the experience of time as a distinct pain of imprisonment (Medlicott, 1999, Jewkes, 2005), and studies which argue that imprisonment is a discrete period of time distinguished from the rest of a prisoner's lifecourse (e.g. Pettit & Western 2004). It has, then, long been appreciated that ‘time is the basic structuring dimension of prison life’ (Sparks et al 1996, 350).

Recent work on prison space within criminology, and in particular that of Jewkes & Johnston (2007), Hancock & Jewkes (2011) and Crewe et al (forthcoming) has much to offer to carceral geography, which has been described (by Philo 2012, 4) as a sub-strand of ‘geographical security studies’, drawing attention to consideration of ‘the spaces set aside for ‘securing’ – detaining, locking up / away – problematic populations of one kind or another’. As argued elsewhere (Moran 2013a), however, a more nuanced interpretation is emerging in the field. In this interpretation, three main areas of interest can be characterised, broadly conceived as the nature of carceral spaces and experiences within them, the spatial
geographies of carceral systems, and the relationship between the carceral and an increasingly punitive state.

Taking these in turn, it is clear that the scholarship in these three areas offers new perspectives on imprisonment, and that ongoing research enables novel understandings of the experiences of carceral spaces to develop. First, in work on the nature and experience of carceral spaces, theorizations of incarceration informed by Foucault are debated and contested. In her work examining a prison for women in South Africa, Dirsuweit (1999) shows that rather than being rendering ‘docile’, prisoner resistance to omni-disciplinary control was expressed through the reclaiming of culturally-defined prison space. Sibley and van Hoven also contest the Foucauldian regulation of prison space and the docility of bodies, describing in New Mexico, ‘spaces… produced and reproduced on a daily basis’ (van Hoven & Sibley 2008, 1016), and the agency of inmates making ‘their own spaces, material and imagined’ (Sibley & van Hoven 2008, 205). In the UK, Baer (2005) identifies the personalization of prison space, and suggested that this spatial modification reflected the construction of the meaning of prison spaces. More recently, de Dardel (2013) has considered individual and collective prisoner agency within a Colombian prison system absorbing a New Prison Culture inspired by the US prison system, Milhaud and Moran (2013) identify the ways in which prisoners in France and Russia consciously negotiate tactical spatial manoeuvres to find solitude in crowded prison spaces, and Conlon (2013) has considered prisoner hunger strikes as a form of ‘counter-conduct’, a practice that enacts a right to question how subjects are governed. This scholarship highlights that prisons are institutions in which, as Jewkes (2013, 128) notes in the lexicon of de Certeau (1984), the powerful construct and exercise their power, but the weak tactically create their own spaces within those places, ‘making them temporarily their own as they occupy and move through them’.

Second, spatial geographies of incarceration have been inspired by concern for the impact of the distribution of places of incarceration on the communities which host or surround them, and they frequently critique and reinterpret ideas of the ‘total institution’ Goffman (1961). Mitchelson (2012) on spatial interdependencies between prisons and cities in Georgia, USA, Che (2005) on the location of a prison in Appalachian Pennsylvania, USA; Glasmeier & Farrigan (2007) on impacts of prison development in persistently poor rural places in the US, Engel’s (2007) research on prison location in the American MidWest, and Bonds’ (2009) questioning of prison siting as a means of encouraging economic development, are examples in this area, as well as studies of the effects of these ‘geographies of punishment’ on experiences of incarceration (e.g. Moran et al 2011, Pallot 2007). Gill (2013, 26) explores the use of Electronic Monitoring as an extension of mainstream carceral environments, suggesting that confinement can be independent of physical restriction, and drawing on Carnichan's (1998) observation that forms of punishment that are not explicitly prison-based can be just as constraining, in a different sense, as traditional incarceration. A major contribution of this body of work is in its suggestion that the
'carceral' is something more than merely the spaces in which individuals are confined - rather, that the 'carceral' is a social and psychological construction relevant both within and outside physical spaces of incarceration.

This understanding of the nature of the 'carceral' informs the third strand of research, into the relationship between these spaces and practices of imprisonment and a punitive state. For example, Allspach (2010), suggests that 'transcarceral' spaces form beyond prison walls and constitute re-confinement, and others see the 'carceral' as inscribed on the bodies of prisoners who carry these markings after their release from confinement (Moran 2012, 2013b). Peck (2003) and Peck & Theodore (2009) have discussed the relationship between prisons and the metropolis in the context of hyperincarceration, in the aftermath of what Wacquant (2011, 3) describes as 'a brutal swing from the social to the penal management of poverty' particularly in the United States, with a 'punitive revamping' of public policy tackling urban marginality through punitive containment, and establishing a 'single carceral continuum' between the ghetto and the prison (Wacquant 2000, 384). Seeing the prison as a locus on the carceral continuum resonates with the work of Baer & Ravneberg (2008) who problematise the conceptualisation of a binary distinction between 'inside' and 'outside', instead positing prisons as 'heterotopic spaces outside of and different from other spaces, but still inside the general social order' (ibid 2008, 214). The work of social theorists and geographers such as Wacquant (2010a,b&c), Gilmore (2007) and Peck & Theodore (2009), calls for greater attention to the causes of and solutions to hyperincarceration (Wacquant 2010b,74), 'prisonfare' (Wacquant 2010c, 197), and the carceral 'churn' (Peck & Theodore 2009, 251). More recently, scholars have drawn attention to specific facets of the relationship between the 'carceral' and the state, with Mitchelson (2013) analysing the political controversy over the counting of prisoners in the US Census - where prisoners are 'counted' as residents of the prison where they are held rather than as residents of the places from which they have come, with the result that prison populations are used for political purposes (such as the allocation of federal funds) from which disenfranchised prisoners are generally excluded. Similarly, Nowakowski (2013) has drawn attention to the use of US prisoner labour, unprotected by workers’ rights or health and safety inspections, to conduct hazardous waste-processing activity in ways which both subsidise the costs of imprisonment, and undercut private recycling companies.

Taking an overview of the scholarship produced by geographers concerned with incarceration enables the notion of the ‘carceral’ to be brought more clearly into view. Dynamically open to transdisciplinarity with the cognate disciplines of criminology and prison sociology, carceral geography is informed by and extends theoretical developments in human geography, but it also, critically, interfaces with contemporary debates such as the ongoing discussion of the aim and purpose of imprisonment and the relationship between prison commissioning and design and the achievement of those aims and purposes. These issues animate and cut across all three strands of research, addressing: the nature and experience of carceral spaces; how
and why carceral spaces are designed and with what purpose; where new build prisons are located and why; and directly linking the physical environment of imprisonment to the punitive intentions of the governing state, in that the prison as it is materially constructed becomes an expression of the aims and purposes of imprisonment for that state.

Although prison design is the critical linkage between the notion of the 'carceral' and the punitive state, it is curiously under-researched. In the next section of the paper we synthesize the work which has been conducted so far, and relate this to current policy developments in the UK context.

**Prison design**

In 1961 a special issue of *British Journal of Criminology* was devoted to prison architecture but, subsequently, criminological scholarship on prison design has been sparse and largely historical, focusing on the 18th/19th century ‘birth of the prison’. Criminological prison research has been dominated by Sykes' (1958) notion of the 'pains of imprisonment', but recent studies have begun to introduce new themes that illuminate the experience of incarceration, including discourses of legitimacy and non-legitimacy (Sparks & Bottoms 1995); security (Drake 2012); therapy (Stevens 2012); compliance and neo-paternalism (Liebling 2004 Crewe 2009); quality of life and healthy prisons (Liebling & Arnold 2002, 2004); normalization (Jewkes 2002); the depth, weight and tightness of imprisonment (Crewe 2009); the resurgence of the doctrine of less eligibility (White 2008); and the UK Prison Service instruction that prisons must meet a public acceptability test (Liebling 2004). However, these studies have not included architecture, design and technology (ADT) as key variables, and the most vivid descriptions of ADT and their effects are to be found in prisoner autobiographies (e.g. Hassine, 2010) and in the kind of poetic testimonies discussed by McWatters (2013). In this work, McWatters adds to understandings of how prison space is actually experienced by those for whom 'it is an ordinary space of daily life' (2013, 199).

The late 1980s saw brief interest in prison design and prisoner wellbeing develop in environmental psychology, with research identifying a link between physical environment and social climate (Houston et al 1988) and finding that prison architecture which creates overcrowded conditions causes significant stress to inmates (Schaeffer et al 1988). A). Canter (1987: 227) argued that a "systematic, scientific evaluation of the successes and failures" of prison design was urgently required in order to explore this relationship further. No such evaluation has taken place, however, and in the intervening period, research in environmental psychology has tended to focus its attention mainly on negative prisoner behaviours and the risk factors which are perceived to contribute towards them; for example, focusing on ‘hard’ prevention techniques for prison suicide, such as developing cell designs with no ligature points from which prisoners can hang themselves. In other words, environmental psychologists have focussed on the design of carceral spaces to reduce prisoners' destructive behaviour while maximizing control on the part
of the prison authorities (Tartaro 2003, Krames & Flett 2000). An attempt has been made to establish a link between different architectural types (determined by satellite imagery) and the regimes assumed to exist within them, and ‘misconduct’ on the part of inmates (Morris & Worrall 2010), although the methodology necessarily precludes further explication of the means by which any such linkages take form.

Recent work within carceral geography has addressed the significance of carceral space (Moran et al 2013b), recognizing space as more than the surface where social practices take place (Gregory & Urry 1985, Lefebvre 1991, Massey 1994). As Adey (2008: 440) argues, "specific spatial structures...can...have certain effects". Designers of spaces consider seductive spatiality (Rose et al 2010) or ambient power (Allen 2006) through which to direct or shape human behaviour. Although geographers understand that space can affect the ways people act within it, and are increasingly applying this perspective to carceral spaces, Siserman (2012) points out that studies of prisons as buildings and environments where the behaviour of inmates can be dramatically changed, and which investigate how this might happen, remain scarce.

Despite, then, a guarded acceptance across several disciplines that the design of carceral spaces has a direct effect on prisoner behaviour and control (Foucault 1979, Alford 2000), the lived environment of prisons, including the potential for positive individual and group experience (personal development, sociability and pro-social skills) has been relatively overlooked in recent scholarship. Moreover, the dominance of psychological studies in extant research on the prison environment has led to a rather narrow range of largely quantitative methodologies, including: urine tests to determine stress responses (Schaeffer et al 1988); the deployment of suicide or misconduct statistics as a proxy for stress, towards which environment might be a contributory factor (Tartaro 2003, Morris & Worrall 2010); and true/false questionnaire responses as part of the Correctional Institution Environment Scale (CIES), which has no explicit environmental dimension; simply being used to measure ‘wellbeing’ in different institutions (Houston et al 1988). Having recognised that the carceral environment ‘matters’ to prisoners’ experiences, and demonstrated it to some degree using these methodologies, without exception, these studies call for a more nuanced investigation of the impact of design on those using prison spaces.

Recent hardening of penal sensibilities in the UK, coupled with more severe sentencing policies (Criminal Justice Act 2003), growing prominence of security concerns within and outside the penal estate, and a rising prison population (which, in England and Wales, has grown by 30% since 2001, peaking at 86,842 in September 2011), makes questions of prison design and the lived experience of carceral space particularly pertinent. This is especially the case in the UK, where prisoners are held in variable conditions within a system perceived to damage its occupants and reinforce criminal identities and behaviours. Chronic overcrowding, high rates of drug use, mental illness, self-harm and suicide, recidivism and its associated financial and social costs, mar the UK system. Prison escapes, however, have fallen dramatically, due in
part to architecture, design and technology; prison walls are higher, prison space is sequestered through zoning, and CCTV cameras and other technologies proliferate.

**Prison architecture, design and technology (ADT)**

ADT is an overlooked aspect of the expansion of the carceral estate, not only under-researched in the academy, but largely absent from policy debate. Indeed, in the UK, the President of the Prison Reform Trust, Lord Hurd, recalls that as Home Secretary he was never asked to adjudicate on matters of prison design, nor was the subject raised in official reports or by pressure groups. He rates ‘the prison designs of much of the post-war period’ as ‘shoddy, expensive and just a little inhuman’ (Hurd 2000: xiii-xiv).

By contrast, prison designers in some other parts of Europe have not only experimented with progressive and highly stylized forms of penal architecture, but have also designed internal prison spaces that explore more open, flexible and normalized spatial planning. Among the design features to be found in these new prisons are: soft furnishings replacing hard fixtures and fittings, zoning different parts of the prison through colour coding and use of psychologically effective colour schemes, attention to the maximum exploitation of natural light and/or artificial light that mimics daylight, access to outdoor spaces with trees, planting and water features, the incorporation of differing levels, horizons and building materials to ward off boredom and monotony, and displays of art and sculpture. This kind of strategic application of architectural and aesthetic principles to the design of new prisons in, for example, Norway, Iceland and Denmark, has been found to encourage personal and intellectual creativity, and even a lightness and vividness of experience (Hancock & Jewkes 2011). Yet, although new prison designs may appear to be either humane alternatives to traditional penal architectures, or inappropriate indulgences to an anti-social population, depending on one’s viewpoint, neither interpretation may be wholly accurate (Ibid).

**Internal environments**

Internally, nineteenth century prisons are usually considered the least healthy environments within the UK penal estate. But while Victorian ‘houses of correction’ ensured inmates’ restricted economy of space, light and colour, imprisoning psychologically as well as physically, it has yet to be established empirically whether ‘old’ always means ‘bad’, while ‘contemporary’ necessarily means ‘progressive’ or ‘humanitarian’. Many nineteenth century prison interiors reveal the benign intentions of Bentham’s panopticon. The visibility inherent in the radial design of prisons such as Pentonville (1842) and Wandsworth (1851) was intended to promote safety and control. Conversely, some more recent institutions have inherited ‘Victorian’ problems, including overcrowding and ‘doubling-up’ in cells no bigger than those intended for single occupancy. For example, within a year of re-opening in 1983, the ‘new’ Holloway Prison was criticized by the UK Prisons Inspectorate as engendering a form of torture that could result in acute mental illness (Home Office 1985). Levels of self-harm, suicide and distress were high and vandalism, barricading
of cells, floodings, arson and violence against other prisoners and staff were common (Medlicott 2008). Among interior layouts recently designed to manage problems like these is the campus-style arrangement of discrete housing units connected by outdoor space and flexible planning and design. Such prisons have experienced different levels of success; although prison architecture may reflect underlying penal philosophies, it must be viewed in the context of local factors at any given time. For example, over the last decade Feltham and Lancaster Farms Young Offenders Institutions have been perceived differently on issues such as bullying, self-harm and suicide; the latter a ‘shining example of commitment and care’ (Leech 2005), while an appalling reputation built by years of damning reports and a high-profile murder (Jewkes & Johnston 2007) clung to the former. That these ‘new generation’ prisons have experienced such different outcomes suggests that prison ADT is a potentially complex and contested area of scholarship deserving of much more rigorous empirical enquiry to address its prevailing conceptual and operational ambiguities.

External environments

Externally, prisons mobilize aesthetic and spatial values and practices to function simultaneously as technologies of control and systems of cultural symbolism. Although there is no ‘typical’ prison, the majority display exterior architectural features that render them instantly recognizable as places of detention and punishment. The mid-nineteenth century local prisons are archetypal; built to resemble fortified castles (e.g. HMP Leeds, 1847), or religious houses (typified by the monastic facade of Strangeways, 1868) exterior facades were carefully scripted to communicate the perils of offending and the retributive power of the sovereign state. The following century gradually saw a more utilitarian style; twentieth century prison design – like much public architecture – rejected the decorative aesthetic. The architectural appeal was less to notion of an arbitrary, untrammelled feudal or ecclesiastical power, than to a modern, ‘rational’ centre of authority (Hancock & Jewkes 2011). By the 1960s and 1970s, new prisons such as Gartree and Long Lartin, communicating authority and efficiency, clearly echoed the austere, yet (considered) humanely functional, styles of high, progressive modernism (ibid). At the turn of the twentieth century prison architecture had been influenced by events and processes of the early-mid-1990s, with security concerns demanding higher walls, tighter perimeters and heightened surveillance. Although the evolution of prison architecture has at various points been intended to communicate a message about the nature of the imprisoning state and the legitimacy of its power to imprison, the ‘audience’ for the various messages of this architecture has largely been either the inmate who receives the punishment handed down by the state, or society at large to whom imprisonment as punishment must be legitimated.

More recent UK penal architecture has been influenced by 1990s security breaches, including prisoner rooftop protests at Strangeways in 1990 and escapes from Whitemoor and Parkhurst prisons in 1994 which led to two government inquiries, chaired by Sir John Woodcock and Sir John Learmont, respectively. Their
subsequent reports transformed prison security and eroded inmates’ quality of life in numerous, insidious ways, suggesting that the breaches were viewed politically as a fortuitous catalyst for change (Liebling 2002; Drake 2012). This nascent preoccupation with repressive structural and situational security as a means of controlling risk coincided with the prison service becoming an executive agency in 1993, and a period of new managerialism, with performance measures for prisons and a system of incentives and earned privileges awarded or withdrawn according to prisoners’ behaviour and complicity. In addition, the early 1990s introduction of the Private Finance Initiative (PFI) enabled awarding of contracts for design, construction, management and finance (DCMF) of penal institutions.

Over the last two decades UK prisons have been built according to logics of cost, efficiency and security. Most prison exteriors share a bland, unassuming and uniform style with vast expanses of brick, few, small windows and no unnecessary decoration. Internally, the imperative in spending the Ministry of Justice’s approximate £300m annual capital budget is to deploy indestructible materials to create custodial environments with no ligature points in which prisoners cannot physically harm themselves or others (RICS 2012). The role of technology is another critical aspect of the experience of prison spaces. A prison’s physical layout and the obvious presence of cameras for monitoring-at-a-distance contribute a sense of artificiality, generating a ‘fake’ environment in which prisoner behaviour is strategic and self-protective and may become self-conscious or even paranoid (Liebling et al, 2012, reporting on HMP Whitemoor).

With regard to exterior environment, prison design is also overlooked in the existing research within both criminology and carceral geography on prison siting and the relationship between prisons and local communities, which has tended to focus on the traditional opposition of communities to the proximate location of prisons. In this work, local residents express concerns that a prison would lower property values, increase levels of crime, endanger their safety through escapes, attract ‘undesirable’ elements and damage the reputation of the area. Increasingly, however, there is an alternative perspective; the generation of ‘profit through punishment’. Recent work identifies a demand for the building of prisons to stimulate local economic development and employment, especially on the part of small rural towns in the United States, with a shift towards policymakers actively locating prisons in ‘lagging’ communities. For example, Cherry & Kunce (2001) found that in California, policymakers located ‘inferior’ public facilities in less prosperous neighbourhoods, partly because there was less ‘NIMBY’ protest than in prosperous areas, and, unable to attract private commerce, these areas may be more willing to ‘accept’ opportunities ‘discarded’ by others. Focussing on the US states of Idaho, Oregon and Montana, Bonds’ work questions whether prisons really bring such economic prosperity (2009, in press 2013). These studies draw attention to the lack of structural economic change in persistently poor rural places, and to prison facilities’ inability to foster economy-wide change in terms of serving as an economic development initiative. However, in focussing on structural economic change associated with prison siting, this approach has been unable to
tackle questions about the response of local communities to the aesthetic appearance of the prisons themselves, and the importance of prison architecture in the ‘acceptance’ of prison siting close to existing communities. A rare exception to this trend within the literature is the work of Sarah Armstrong (in press), who finds in her study of prison siting in Scotland, that a local community described a proposed prison as a ‘monstrosity of a building’, a ‘massive edifice’, and a ‘monumental monstrosity lit up at night’. The prison’s design was seen to be ‘out of keeping’ with the perceived nature of the surrounding area, and it was argued that a ‘large, unambiguously manmade, permanently lit monolith’ would irrevocably change the character of the local area. There is more than a suggestion here that the aesthetic appearance of prisons is of considerable, yet under-explored, importance for local residents.

**Researching the prison environment**

In order to build on and extend previous work, and to explicitly address the prison environment as a locus of the carceral experience, we argue that carceral geography should explore the *intentions behind* the architecture, design and technologies of spatial management and control that characterize the recent penal estate, paying particular attention to external and internal spaces. Karen Morin’s recent work highlights the value of such an approach, focussing on the US penitentiary at Lewisburg, Pennsylvania, which was retro-fitted in 2008 to offer the country’s first federal Special Management Unit (SMU) programme of its kind. Designed for the most intractably troublesome federal inmates from around the country, the SMU features double-celling of inmates in tiny spaces, subject to 23-hour or 24-hour a day lockdown. These spatial tactics, she suggests, and the philosophy of punishment underlying them, contrast starkly with the modern reform ideals upon which the prison was originally designed and built in 1932. Morin (2013) argues that the SMU represents the ‘latest punitive phase’ in American penology, one that neither simply eliminates, as in the premodern spectacle, nor creates the docile, rehabilitated bodies of the modern panopticon; rather, she argues that this particular retro-fitted prison design is a ‘late-modern structure that produces only fear, terror, violence, and death’. However, it is not just in the supermax that such descriptions are used to describe everyday life in confinement. One ‘lifer’ who spent 27 years in the American penal system, before taking his own life, asserted that prison designers and managers have developed a ‘precise and universal alphabet of fear’ (Hassine, 2010, 7), which creates an outwardly benign illusion but is comparable to an ant farm in which the visible order, regularity, and routine fails to expose the ‘violence and crushing hopelessness the trapped ants are actually forced to endure’ (ibid, 122). Such observations beg questions about the design process which, as Wener (2013, 7) notes, is ‘the wedge that forces the system to think through its approach and review, restate, or redevelop its philosophy of criminal justice’. What are the processes which lead to the conscious and intentional design of such carceral spaces, and to what extent do prisoners experience in them what was intended in that design process?

Our argument here is that research into the prison environment should deploy a holistic, multidisciplinary
approach that considers positive and negative impacts of penal architecture, spatial design and technology and one which empirically tests the value of new design initiatives in prisons. ADT’s influence on the relationship between space, meaning and power, and the ways in which architecture, design and technology communicate the aims and techniques of penal authority, shape the lived experience of imprisonment, and impact on the working environment of prison staff are, we believe, all worthy of detailed investigation. Furthermore, the views and experiences of other stakeholders, including prisoners’ families and visitors interacting with prison buildings, should be sought. Indices of ‘healthy prisons’ and ‘quality of life’, are commonly used within academic and policy discourse, and MQPL studies have found that regimes which facilitate good relationships between staff and prisoners, provide space and opportunity for a full range of activities, and offer decent working and living conditions, tend to be the ‘healthiest’ custodial facilities. However, future research must also address the predominant considerations and penal philosophies underpinning the design of the internal and external spaces of newly commissioned and newly built facilities, and explore the impact of the architecture, design, and technology of prisons on the experience of imprisonment, on the behaviour of those who occupy and move through carceral spaces, and on staff-prisoner and staff-management relationships.

In this context, it is also critical to understand not only the effectiveness of technology and its role in the spatial organization, security and order of contemporary prisons, but also how prisoners manage existential issues of self and identity and adapt socially under intense and inescapable duress. ‘Dynamic security’ based on good relationships between prisoners and staff is no longer possible (or even considered desirable) in many new build prisons and, while prisoners may value technologies including CCTV for their personal safety and for its capacity to provide evidence of bullying and assaults, it nonetheless reinforces the absence of privacy and demands continuous self-censorship. Also significant are the concerns of prison staff, for whom technology may give rise to similarly conflicting emotions. Most workplaces now utilize surveillance and monitoring technologies and, whatever legitimate justifications have accompanied them, they have inevitably enabled employees to come under the scrutiny of their managers (Brown, 2000, Townsend & Bennett, 2003; Ball, 2010). The notion of trust, once regarded as an essential element of the management–staff relationship, has been undermined by surveillance systems introduced to ensure that ‘correct’ organizational procedures are followed. Additionally, like many other environments, prisons now monitor everyone who operates in or moves through them via an interface of technology and corporeality, encouraging flexibility of movement while retaining high (but discreet) levels of security. Among the technologies in use in prisons are: cameras wirelessly transmitting digital images then screened for unusual objects and atypical movements; biometric and electronic monitoring of prisoners and visitors to allow tracking of bodies anywhere in the prison; listening devices monitoring the spectral content of sound to spot illicit use of mobile phones or early signs of aggressive behaviour; and Blackberry-style devices for prison officers that enable immediate reports to be relayed to Security (OIS 2008).
Although in this paper we have focussed on the UK, these questions remain of equal import in other carceral contexts. Whereas Morin’s (2013) work suggests that in the US we are seeing a move towards increasingly severe and restrictive prison designs, in northwest Europe, technologies make humane, open-plan, ‘progressive’ prisons viable and facilitate a freer level of movement among and between inmates and staff. Even here, though, questions remain as to whether these ‘humane’ prisons lead to some of the problems of privacy, identity management and presentation of self identified earlier. There is some evidence that technology-assisted, decentralized, podular designs approximate ‘normality’ by providing safer and more comfortable living environments, and removing security gates, bars and grilles, enabling prison officers to be more than ‘turn-keys’ (Spens 1994). But there has been scant official or scholarly discussion of other potential uses of technology, such as the identification of abuse or aggressive behaviour by prison officers (either to prisoners or their colleagues), the surveillance of staff smuggling contraband into the prison, or behaving in ways disapproved of by prison authorities. Similarly, there is little debate about the moral and ethical implications of near-constant surveillance of prisoners and officers, or the difficulties in establishing trust when basic standards of privacy are compromised. The use of technologies could exacerbate complex horizontal and vertical relationships between prison inmates, officers, managers and ministers. Everyone who moves within and through these ‘hyper-organizational spaces’ (Zhang et al 2008) is not only enmeshed in a surveillance assemblage that forces them to manage their own presentation of self within the regulative framework of the institution, but is further encouraged to watch while knowingly being watched. Although lack of privacy has long been recognized as a ‘pain of imprisonment’ for inmates, for prison staff the new panopticism is a novel form of control (Bauman 1989; Hancock & Jewkes 2011).

Summary
Recent work synthesizing criminological perspectives with organization theory has argued that sensorially depriving qualities inherent in the architecture and spatial organization of the prison interface with advances in discreet technology to produce both compliant inmates and a passive, functional workforce (Hancock & Jewkes 2011). But while humane and safe internal environments are unquestionably desirable for prisoners and prison staff, and factors such as natural daylight, aesthetic stimuli and comfort are clear indices of quality of life, this work has also questioned assumptions that the kind of open, colourful, flexible spaces found in some parts of northern Europe, are always as ‘liberating’ as they may superficially appear to be. It has also suggested that design can have unintended outcomes or perverse consequences. Of course, architects are increasingly constrained by highly restrictive briefs and their role ends when the contract is complete and a facility is handed over to prison managers, staff and prisoners. But even good intentions in architecture, design and technology can, it has been suggested, lead to a subtle intensification of power and control, perfectly suited to creating docility and compliance (ibid).
For carceral geography, too, the lived experience of carceral spaces has, in one way or another, become a central tenet of recent research and geographers have made a valuable contribution to understandings of how, even within the most restrictive conditions of confinement, prisoners' employ effective spatial tactics within surveilled space, create individual and collective means of resistance to carceral regimes, and succeed in appropriating and personalising carceral spaces. While this growing body of work has illuminated some of the darkest carceral spaces, the vast majority of research to date has tended to focus solely on inmate responses to, and adaptations of, the physical spaces of incarceration. This 'bottom-up' approach is important and understandable, but the ways in which punitive philosophies are manifest in prison commissioning and construction currently remain relatively unknown. The challenge for carceral geographers and other scholars interested in prisons and imprisonment, then, is to start to address why those spaces are as they are, and interrogate the intentions behind the design of those spaces. In this paper we suggest that these matters are worthy of urgent attention, and that pursuing them could enable us not only to better understand the experience of incarceration, but also to open the design process itself to scrutiny and reflection. Wener (2012, 7) argues that prison environments represent both an 'overt' agenda that provides measurable quantities of space for accommodation, training, therapy, education and so on, but also a 'covert' agenda that reflects what or who inmates 'are' in the minds of planners, designers, and those who commission them to design and build prisons. By opening a space for the articulation of this 'covert' agenda, we suggest that carceral geography, in dialogue with criminology and prison sociology, could contribute positively to the ongoing debate over the expansion of the penal estate.
References


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