The Contradictions of Jeremy Bentham's Panopticon Penitentiary[1]

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The term 'Panopticon' has been used more or less loosely, since Jeremy Bentham first coined the word, to refer to any prison – or indeed any other kind of institutional building – which has a centralised plan and some sort of observation post at the middle.[2] But if we take the word to apply more narrowly to cylindrical prisons along the lines that Bentham himself imagined, then very few have ever been built. There were three panopticons erected in Holland in the late nineteenth century, all of which survive. Figure 1 shows the Koepelgevangenis [cupola prison] at Arnhem, designed by J F Metzelaar.[3] Perhaps the best-known true panopticons ever constructed were at the Stateville Penitentiary near Joliet in Illinois (Figure 2), where there were five rotundas within the one prison, built between 1916 and 1924. The architect was W. Carbys Zimmerman. All but one have since been demolished. Stateville was the model in turn for a prison on the Isle of Pines in Cuba, opened in 1931. And that is about it.[4] Meanwhile hundreds of prisons were built across the world throughout the

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[1] Based on a public lecture given at UCL, 20 February 2007.

[2] Bentham set out his ideas for the Panopticon in a series of letters written from Russia to 'a friend' in England (in fact his father) in 1787. These were later supplemented by two much longer 'postscripts'. Both Letters and Postscripts were published as *Panopticon: or, the Inspection-House* (Thomas Byrne, Dublin 1791), and *Panopticon: Postscript* (T Payne, London 1791, 2 vols). They were then republished in 'Panopticon; or the Inspection-House', *The Works of Jeremy Bentham*, ed. J.Bowring, 11 vols, Edinburgh 1843, iii, pp. 37-172, along with 'Panopticon versus New South Wales: or the Panopticon Penitentiary System, and the Penal Colonization System, Compared', pp. 173-211. Both Letters and Postscripts are included in *The Panopticon Writings*, ed. M Bozovic, London and New York, 1960. The political history of the Panopticon and Bentham's struggles to have it built are told in J. Semple, *Bentham's Prison: A Study of the Panopticon Penitentiary*, Oxford, 1993.

[3] The avant-garde Dutch architect Rem Koolhaas was commissioned in 1979 to make proposals to extend the life of this Arnhem Panopticon. The plans were not carried out. However the building was restored and renovated in 2000 by another firm Archivolt.

[4] A few prisons with semi-circular plans were also influenced more or less directly by the Panopticon. These include the Edinburgh Bridewell (1791-95) by Robert Adam, who was shown the Panopticon drawings by Bentham himself; J.M. Gandy's female wing at Lancaster Castle Gaol (1818-21); and a prison built at Mataró near Barcelona in 1852, similar to the Edinburgh Bridewell. In the United States the Virginia Penitentiary at Richmond designed by Benjamin Latrobe and opened in 1800 had a horseshoe-shaped plan with cells facing inwards onto an uncovered courtyard. It seems possible that Latrobe saw some sketches for prisons by Thomas Jefferson who was familiar with the work of British prison reformers. All of these buildings departed significantly from Bentham's scheme in one way or another, but all had central observation points from which the interiors of all the cells could be seen - if

nineteenth century and well into the twentieth, on the general layout of Pentonville, whose plan has a series of straight cellblocks radiating from a central hall (Figure 19).

Figure 1: Koepelgevangenis [cupola prison] at Arnhem, the Netherlands, 1886, architect J.F. Metzelaar. Photo from www.archivolt-bna.nl/

Figure 2: Stateville Penitentiary, near Joliet, Illinois, 1916-24, architect W. Carbys Zimmerman. From a 1930s postcard reproduced at www.people.fas.harvard.edu/~wellerst/collection/

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with difficulty in the case of the Richmond gaol. The ill-fated Western Penitentiary in Pittsburgh (c.1820) by William Strickland, on the other hand, although described as a panopticon at the time, resembled Bentham's scheme only in being circular. See R. Evans, *The Fabrication of Virtue: English Prison Architecture, 1750-1840*, Cambridge, 1982 p. 228 and N. Johnston, *Forms of Constraint: A History of Prison Architecture*, Urbana and Chicago, 2000, pp. 52-53, 82-83 and 107.

All this is odd, since architectural historians and social scientists, most prominent among them Michel Foucault, have attributed enormous influence to Bentham's Panopticon.[5] They have seen it as the original model for a new kind of supervisory power relation across a whole range of nineteenth century types of institution: not just prisons, but schools, hospitals, barracks and factories. In Foucault's own words:

> In the 1830s, the Panopticon became the architectural programme of most prison projects.[6]
>
> [and]
>
> The fact that it should have given rise, even in our own time, to so many variations, projected or realized, is evidence of the imaginative intensity that it has possessed for almost two hundred years [...] Whenever one is dealing with a multiplicity of individuals on whom a task or a particular form of behaviour must be imposed, the panoptic scheme may be used.[7]

Janet Semple, author of the only monograph on the Panopticon, has said that Foucault 'and other revisionist historians, link the penitentiary with the evolution of the whole apparatus of social control developed in response to the needs of the emerging industrial capitalist society'.[8]

In this paper I will not address directly these kinds of political and sociological claims. My focus is instead on the design of Bentham's building, taken on its own terms. Why - despite Foucault - was it so rarely copied, and why did radial prisons on the model of Pentonville succeed - at least numerically? I will suggest that there were many contradictions at the heart of the Panopticon's design, most of them stemming in truth from its central guiding idea - that of arranging prisoners in a circle, watched by an all-seeing eye at the centre. These contradictions were many of them resolved in the radiating plan of Pentonville.

First however it is necessary to provide some background to the intense discussion of prison reform going on in Britain, Europe and the United States towards

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[5] M. Foucault, *Surveiller et Punir: Naissance de la Prison*, Paris, 1975; trans. as A. Sheridan, *Discipline and Punish: The Birth of the Prison*, London, 1977.
[6] Foucault, *Discipline and Punish,* p. 249.
[7] *Ibid.*, p. 205.
[8] Semple, *Bentham's Prison,* p. 152.

the end of the eighteenth century, of which one product was Bentham's revolutionary proposal. Space allows only the sketchiest account, and so what follows is a simplification and generalisation of these complex debates. Conditions in most European and American prisons were appalling. The great reformer John Howard made a series of inspections of British gaols in the 1770s, and revealed the extent of the horrors in his celebrated and widely read report *The State of the Prisons* of 1777.[9] Inmates were left alone and unsupervised for much of the time. Different kinds of prisoner were held together in promiscuous confusion: men, women and children; hardened criminals and first-time offenders; prisoners on remand and debtors mixed with thieves and murderers. Not surprisingly, there was violence and intimidation, there was sexual depravity, and young detainees became corrupted.

Figure 3 reproduces George Cruikshank's cartoon of 'Newgate Prison Discipline' from as late as 1818.[10] One suspects that Cruikshank's picture, though grim enough, is somewhat more jovial and less ugly than the real thing. Howard describes how '[i]n some Gaols you see (and who can see it without pain?) boys of twelve or fourteen eagerly listening to the stories told by practised and experienced criminals, of their adventures, successes, stratagems and escapes'.[11] Since there was little occupation for the inmates, and they had easy access to alcohol, the results were idleness, drunkenness and vice - the very things that the penal reformers saw as the causes of crime in the first place.

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[9] J. Howard, *The State of the Prisons in England and Wales, with Preliminary Observations, and an Account of Some Foreign Prisons*, Warrington, 1777
[10] British Library.
[11] Howard, *State of the Prisons* p. 16.

Figure 3: George Cruikshank, 'Newgate Prison Discipline', 1818. British Library

The prisons too were repositories of disease, the most dangerous of which was 'gaol fever', now known to be a form of typhus. Howard estimated that more died from this cause in 1773 and 1774 than went to the gallows.[12] The infection was even carried by prisoners into the courts. The authorities were greatly alarmed by one occasion at the Old Bailey in April 1750 when those present noticed a particularly 'noisome smell'.[13] A week later two judges, a lawyer, several of the jury and more than forty others developed high fevers and died.

It is against this backdrop that one can understand the urgent efforts towards prison reform around the turn of the eighteenth and nineteenth centuries. The new institutions like Pentonville and the Panopticon might, in some of their features, seem brutal and cruel to us today. But we ought to judge them against what they replaced, and appreciate that they were the products of humane, pious and benevolent men (and a few women), many of them Quakers and Evangelicals. What were the solutions? In order to combat disease, the new prisons were to be clean, hygienic, dry and heated. There would be prison doctors and infirmaries. The Panopticon was intended to have central heating and forced ventilation, together with privies and running water in every cell, supplied from a giant cistern in the roof. Bentham also envisaged a

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[12] *Ibid*, p. 17.
[13] See Evans, *The Fabrication of Virtue* p. 95.

basement kitchen with dumb waiters to carry hot meals to the cell floors.[14] At Pentonville all these things were realised in practice.[15] Indeed from the point of view of services and sanitation Pentonville was one of the most advanced buildings of its time, along with the Reform Club and the Houses of Parliament.

Prisoners were to be kept occupied in useful labour, to equip them with trades on their release, and to make profits for the private prison contractor in the case of the Panopticon. In both Pentonville and the Panopticon the inmates were to work in their cells. Prisoners were to be separated into classes, by age, sex, and the type and seriousness of their offences. These distinct classes were to be confined in different blocks or wings of the same prison, or else segregated in specialised prison establishments. The *ne plus ultra* of this drive towards classification was solitary confinement, which would prevent all possibility of moral contagion and sexual promiscuity, and would of course also limit the spread of contagious disease. One important further motive for separating prisoners completely was the belief that in quiet seclusion they would be able to reflect on their sins, seek God's forgiveness, and repent. Hence the new term for the prison: the 'penitentiary'.

Bentham originally planned the Panopticon for solitary imprisonment, but changed his mind later as evidence emerged of the terrible cruelty of the practice.[16] At Pentonville too, prisoners were held in complete isolation in the early years - according to the so-called 'separate system' - despite the fact that in many cases this caused them to become torpid, sullen and embittered, and eventually drove some of them mad.[17] The corporal punishments of the eighteenth century were designed to break offenders' bodies; but solitary confinement broke their spirit.

However while such regimes lasted, some reformed prisons especially in America experimented with mixed programmes where convicts were kept in single cells at night, but were brought out to work and exercise in 'association' during the day. They were however obliged to remain silent at all times. This effort to prevent any speaking or other communication - the 'silent system' - was sometimes carried to extremes, even to the extent of making the prisoners wear hoods or masks. Above all in the penitentiary the prisoners were to be continually *watched*, to deter them from

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[14] See 'Postscript, Part I', sections ix, xxii and xxiii in Bowring, iv. p. 87 and pp. 110-115; also Evans, *Fabrication of Virtue* pp. 225-227 and Figure 114.
[15] See Evans, *Fabrication of Virtue* pp. 354-357.
[16] 'Postscript, Part I', Bowring, iv. pp. 71-75.
[17] R.S. Duncan, *Peerless Priceless Pentonville: 160 Years of History*, London, 2000, p. 41.

idling, talking or otherwise misbehaving. With all this in mind, let us look at the design of the Panopticon.

It is clear that from the outset Bentham imagined a circle of prison cells with the governor or inspector at the centre. Figure 4 above shows what seems to be an early thumbnail sketch for the frontispiece of a projected book on the Panopticon.[18] The central oval depicts the ring of cells. The three words read 'Justice', 'Mercy' and 'Vigilance'. The text below is from the 139th Psalm: 'Thou art about my path, and about my bed: and spiest out all my ways'.

Figure 5 above shows a preliminary architectural scheme of 1787 on the way to the final design of 1791.[19] The drawing shows a half elevation, a half section, and a half plan. In this early proposal there are four floors of cells, lit with large windows so that, viewed from the governor's tower at the centre, the prisoners are brightly lit from behind and their every move can be clearly seen. Bentham's wish however was that this process of observation be *one-way*. He wanted the governor, and his staff, and visitors to the prison, to be able to watch the convicts; but he did not want the prisoners to watch back. The idea was that every prisoner should be under constant apprehension that he *might* be observed, night and day, even if no-one was actually looking in his direction at that very moment. He would thus be constantly fearful of being discovered in any misdemeanour. As Miran Bozovic has pointed out, the prisoners would in time become so conscious of this threat of constant observation it would be as if they were *watching themselves*.[20]

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[18] Bentham Collection, cxix. fo. 124, UCL Special Collections [hereafter UC].

[19] The original drawing was destroyed in a fire at the printers, and the engraver improvised this version. It was not included (although it continued to be numbered as 'Plate I') in the version of 'Postscript, Part I' in Bowring, iv. p. 172, since it showed what Bentham by then thought to be an 'imperfect' plan.

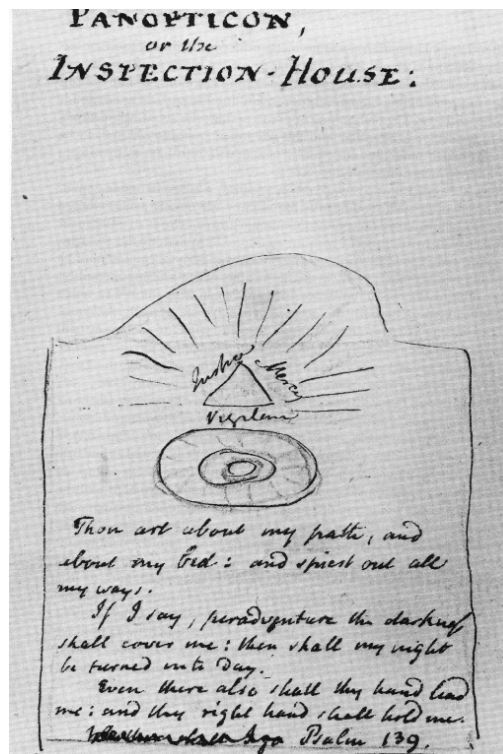[20] Miran Bozovic, Introduction to Bentham, *Panopticon Writings* p.16

Figure 4: Sketch for the frontispiece of Bentham's planned book *Panopticon: or the Inspection-House*. Bentham Collection, UCL.
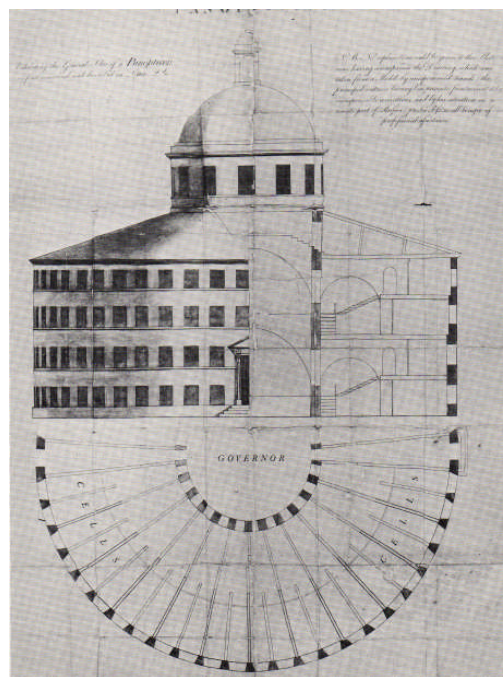

Figure 5: 1787 design for the Panopticon. Plate 1 in J. Bentham, *Management of the Poor*, Dublin 1796

So the governor's quarters were to be hung with blinds or curtains, through which he and his staff might look out through small peepholes. This meant however

that the centre of the building would have been in more or less complete darkness.[21] Bentham struggled and struggled to achieve his goal of one-way vision, but as we will see he was ultimately defeated (he would have been very excited about CCTV). Also Bentham discovered that there was not enough room in the middle of the building to house all of the other functions needed by a prison: lodgings for the doctor and chaplain, a chapel, stores and so on. And if they *were* built at the centre, they would obviously block the all-important views of the cells.

In 1791 Bentham asked the architect Willey Reveley to draw up a revised design, which was intended to remedy some of these defects (Figure 6).[22] Jeremy's engineer brother Samuel Bentham also advised. There are cells now on six floors, and the building is lit from the top by a giant annular roof-light, as well as by the cell windows. Living accommodation for the governor and his staff has been removed from the centre, and the centre is partly - although not completely - empty. The geometry of this revised design is complicated, and so I have made some diagrammatic drawings to try to explain it.

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[21] 'Postscript, Part I', Bowring, iv. p. 80.
[22] This drawing is reproduced as Plate II in 'Postscript, Part I', following p. 172. Reveley's original and other related drawings are in the Bentham Collection, UCL. They have been used as the basis of the author's own diagrams in the present paper.
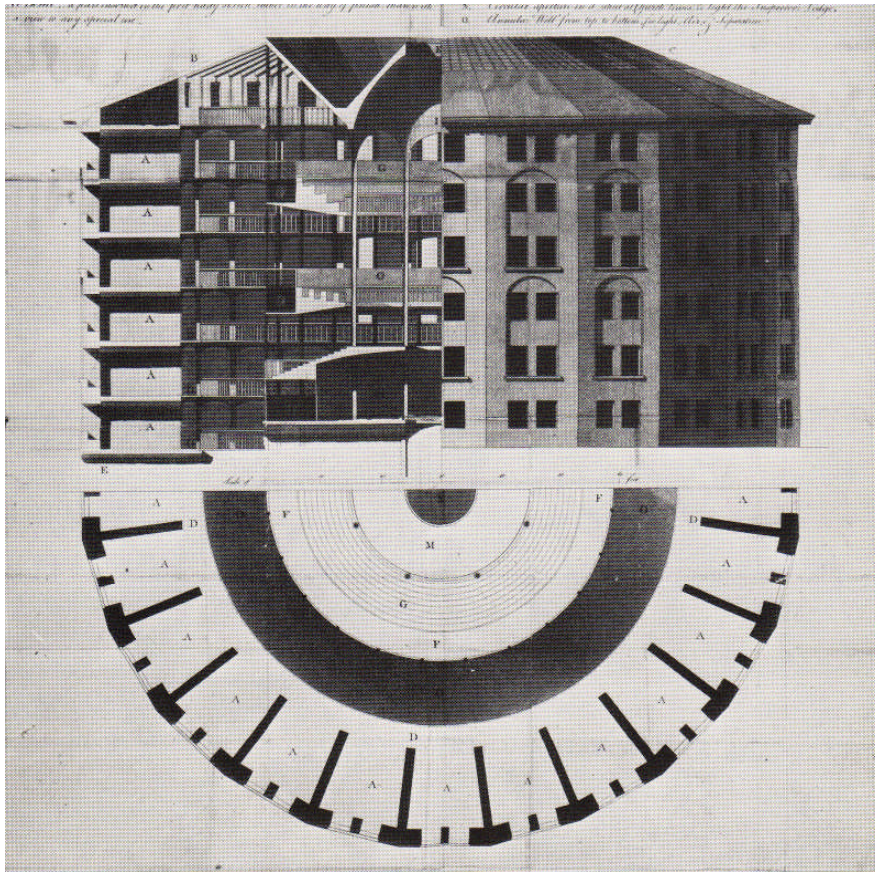
Figure 6: 1791 design for the Panopticon by Jeremy Bentham, Samuel Bentham and the architect Willey Reveley. Plate II in 'Postscript – Part II' *Works of Jeremy Bentham***.**
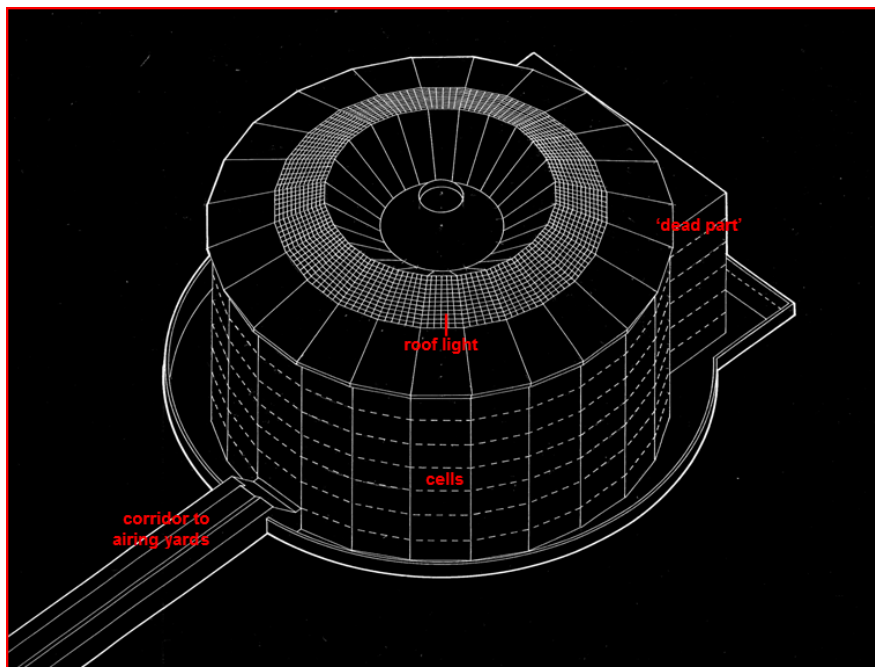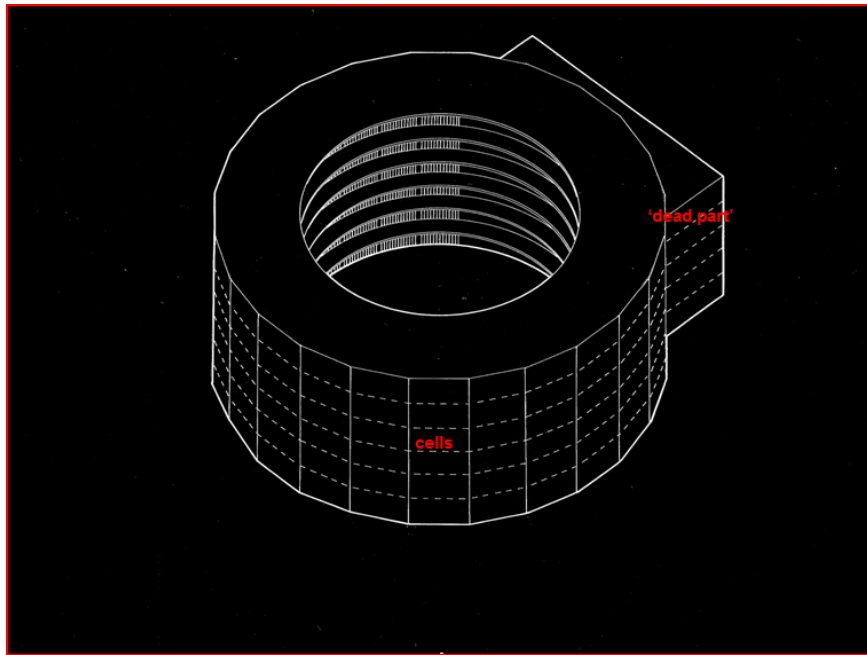

Figure 7: Axonometric (bird's eye) view of the 1791 Panopticon to show the six floors of cells, the roof-light and oculus, the 'dead part' and the corridor to the airing yards. Author's drawing.

Figure 7 is a bird's eye view of the Panopticon, looking like some gigantic pork pie. There is a basement in addition to the six floors of cells. The drawing gives a clear view of the roof-light, together with a central oculus to supply yet more light from the top. The building sits in a kind of trough or dry moat that serves to allow light and ventilation to the basement, and - with a surrounding wall - acts as an obstacle to any attempt at escape. The straight structure at lower left is a corridor leading to the exercise or 'airing' yards. The rectangular addition at upper right contains the governor's house and the administrative offices. Rather oddly, Bentham refers to this as the 'dead part' of the building.[23]
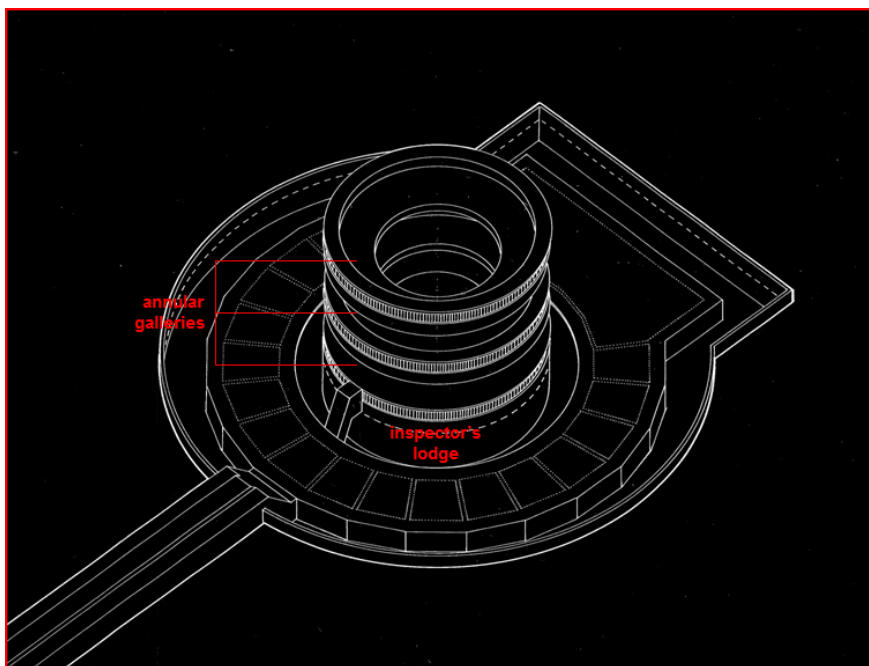
In Figure 8 the roof and the basement are removed, and it is possible to see the rings of cells with their barred fronts, and the galleries giving access to the cells. There would be space for twenty-four cells in the complete circle, but the governor's accommodation takes the place of five cells. This seems to be why Bentham calls it the 'dead part': it has no windows onto the interior. Finally in Figure 9 the drum of cells is removed and all that remains is the basement and a central tower. At the bottom is a circular room, referred to by Bentham as the 'inspector's lodge'. This is the prison's operational control centre. The lodge is lit from the roof by a second oculus that is not visible in this view. Flying above the inspector's lodge are three 'annular galleries' - with the vertical shading - around which the warders now patrol.

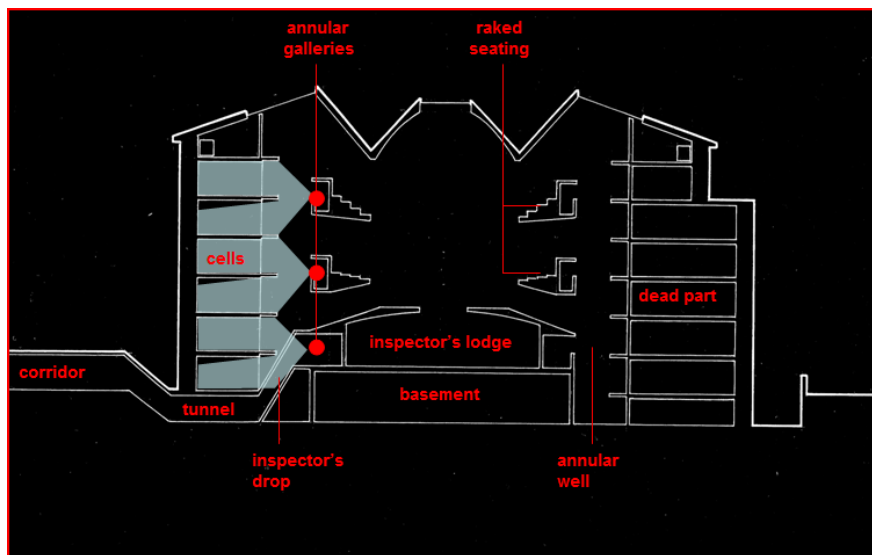
[23] 'Postscript, Part I', Bowring, iv. pp. 76-78.

Figure 8: Axonometric view of the 1791 Panopticon with the roof and basement floor removed, to show the ring of cells and the cell balconies. Author's drawing.

Figure 9: Axonometric view of the 1791 Panopticon with the roof, the cell floors and the 'dead part' removed, to show the inspector's lodge, the three annular galleries, and the central raked seating for divine service. Author's drawing.

It is perhaps easier to understand how all these elements come together in a cross-section (Figure 10). On the left are cells and on the right the 'dead part'. On ground level at the centre is the inspector's lodge with its oculus. Around and above the lodge are the three levels of annular inspection galleries, set at heights such that

the warders can see from each of them into two floors of cells, as indicated by the shaded angles of view.[24] Bentham specifies speaking tubes, running up the structural columns, through which the warders above can communicate with the inspector in the lodge below. There are also to be loudhailers through which the inspector can address the prisoners. Within the annular galleries are two further structures that have sloping rows of seats looking towards the centre. The purpose is to provide for religious services, preached by the chaplain from a central pulpit.
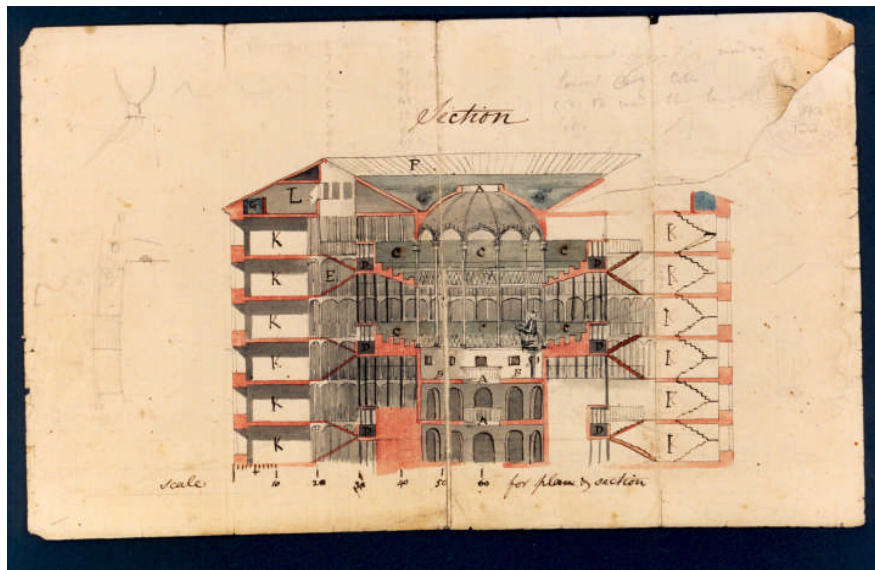

Figure 10: Cross-section of the 1791 Panopticon to show the cell floors, the 'dead part', the annular galleries, the 'annular well', the inspector's lodge, the two tiers of raked seating, and the 'inspector's drop' leading to the corridor through which access is gained to the airing yards. The shading shows the views of the cells obtained by warders in the annular galleries. Author's drawing.

Notice that between the central tower and the cells is a gap - Bentham calls it the 'annular well' - about two metres wide and rising the whole height of the building.[25] They are not shown in Figure 10, but there are staircases in this annular well and bridges crossing from the tower to the cell balconies. Figure 11 reproduces a delicately water-coloured cross-section by Reveley for comparison that includes the staircases and bridges, the iron columns supporting the galleries, the water tank in the roof and the chaplain in his pulpit. The inspection galleries are again designed so that the officers can look out, but so that the prisoners - at least in theory - cannot look in.

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[24] *Ibid*., p. 70. The text refers to figures showing lines of sight from the inspection galleries into the cells; but these seem to be missing from 'Postscript - Part I'.

The interiors of the passages are painted black, and the openings are covered with blinds in which small peepholes are cut.

Figure 11: Cross-section of the 1791 Panopticon by Willey Reveley (with some differences from the published design of Figure 6). In addition to the features visible in Figure 10, this drawing shows the stairs and bridges crossing the 'annular well', the cast iron columns supporting the galleries and roof, the water tank in the attic, and the chaplain in his pulpit. Bentham Collection, UCL.

Figure 12 is Bentham and Reveley's diagrammatic plan for the layout of a complete Panoptical prison with three rotundas.[26] The 'dead parts' all front onto the main access road, and the straight corridors lead out to the exercise yards at the rear. Around the whole site is an enclosing wall with two guard towers. Rather surprisingly however these towers look *outwards* and have no views over the prison grounds. Bentham was much more concerned with the threat of a mob breaking *into* the prison than with the possibility that the inmates might get out on their own initiative. He was motivated in this by the recent and painful experience of the Gordon Riots of 1780 - to which he alludes - when the rioters sacked Newgate Gaol and released its occupants.

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[25] *Ibid*., pp. 69-70.

[26] *Ibid*., plate III, following p. 172. See also discussions in section xxi pp. 105-106, and in 'Postscript, Part II', pp. 137-138.
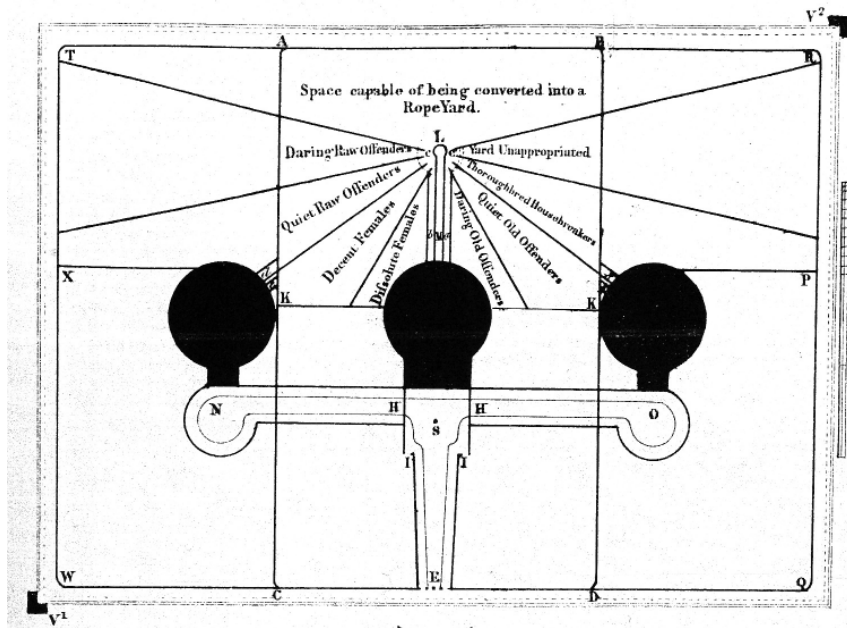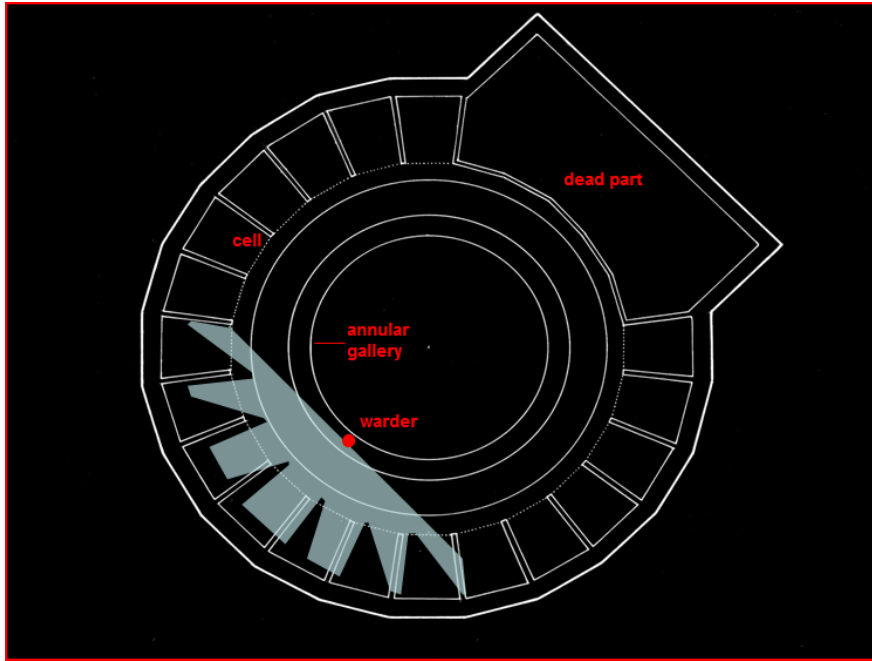
Figure 12: Plan of a Panopticon penitentiary with three rotundas, showing the access roads, airing yards and perimeter wall. Plate III in 'Postscript – Part II', *Works of Jeremy Bentham.*

The first thing to notice about the 1791 design is that there is now no single point, not even a single room, from which the governor and his guards can simultaneously see all the cells. From the centre, the galleries and raked seating always block parts of the view. In an important sense then, *this is no longer a true Panopticon*. There is no view out, except upwards, from the inspector's lodge. And from any given position in an annular gallery a warder can see, on each of two levels, the complete interior of just one cell, plus parts of six other adjoining cells, as the plan of Figure 13 illustrates. In architectural research a plot of the totality of what can be seen from a fixed position is known as an 'isovist'.[27] The shaded area shows the warder's isovist. The warder must circulate continuously to watch all the prisoners on his floor.

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[27] M.L. Benedikt, 'To take hold of space: isovists and isovist fields', *Environment and Planning B: Planning and Design*, vi. (1979), pp. 47-65.

Figure 13: Plan of one floor of the 1791 Panopticon showing the isovist or extent of view of the cells available to a warder from a given position on an annular gallery. Author's drawing.

The inspection galleries were the architect Reveley's invention, not Bentham's, and it has to be said that they fundamentally undermine the central Panoptical principle. Bentham continued to toy with the idea of some kind of translucent 'inspection lantern' (Figure 14), sufficient to house just one observer, suspended somehow at the centre of the prison.[28] He seems to want to hang onto this idea as an alternative to Reveley's galleries. But such a lantern would have presented as many problems as it solved. How would the observer get into position without being seen; and having got there, how would he communicate to the prisoners or to his fellow officers about any breaches of discipline he might observe? More crucially, the idea of such a lantern implied of course that the entire remainder of the centre of the prison was empty, so that no other rooms or structures would block its view.

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[28] 'Postscript, Part I', Bowring, iv. p. 82. The sketch is in the Bentham Collection, UCL.
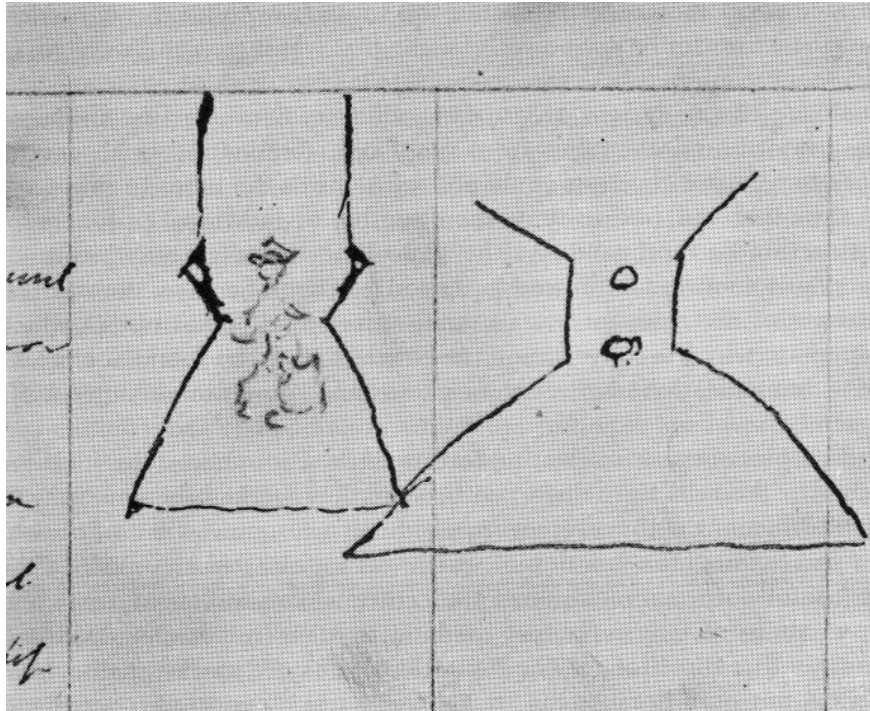
Figure 14: Bentham's sketches for a central 'inspection lantern'. Bentham Collection, UCL.

This actually *was* the principle on which the rotundas at Stateville were designed (Figure 15). There was a glazed lookout post at the centre, and nothing else. This was a huge waste of useless - and in the Stateville case poorly lit - space. Alfred Hopkins, a prominent American prison architect referred to the Stateville rotundas as '... the most awful receptacle of gloom ever devised...'[29] But there was an operational consequence that was much more serious, vividly described by a former Stateville inmate, Paul Warren. 'They figured they were smart building them that way. They figured they could watch every inmate in the house with only one screw in the tower. What they didn't figure is that the cons know all the time where the screw is...'[30]

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[29] A Hopkins, *Prisons and Prison Buildings*, New York, 1930 p. 43; cited by G. Geis, 'Jeremy Bentham' in H. Mannheim, ed. *Pioneers in Criminology*, London, 1960, pp. 51-67. See p. 65.
[30] P. Warren, *Next Time is for Life*, New York, 1953 p. 139.

Figure 15: Interior of a rotunda at Stateville Penitentiary, Joliet, Illinois. Photo from Illinois Department of Corrections.

It is not of course sufficient for the warders just to observe. When they see trouble they have to *act*: they have to go rapidly themselves, or they have to send their colleagues to sort out the problem. Bentham was reluctant to acknowledge this point. He believed that whenever a prisoner misbehaved, a warder would see this, would issue an immediate warning by loudhailer, and the prisoner would desist. This seems overly hopeful. Suppose that despite the warning trouble persisted and even spread. In a Panopticon prison in which the cells have open fronts, it is in the nature of the situation that, once the warders emerge from their observation galleries, the prisoners *can see them coming*. The prisoners can never be taken completely by surprise in any wrongdoing.

The Panopticon design of 1791 had a further obstacle in the way of warders getting from the inspection galleries to the cells. There was the two-metre gap, the 'annular well', between them. To get to a trouble spot a warder would have had to run to a staircase, go up or down to a bridge, unlock the security gate on the bridge, and run round the gallery to the cell in question. One has the general impression that Bentham tended to think of his prison as a static device, where inmates stayed in one part and warders watched from another part. He talks about it as a 'machine': but it seems that despite this metaphor, Bentham did not think so clearly about the prison as

a functioning institution, in which the different classes of occupants had on occasion to move about and interact.
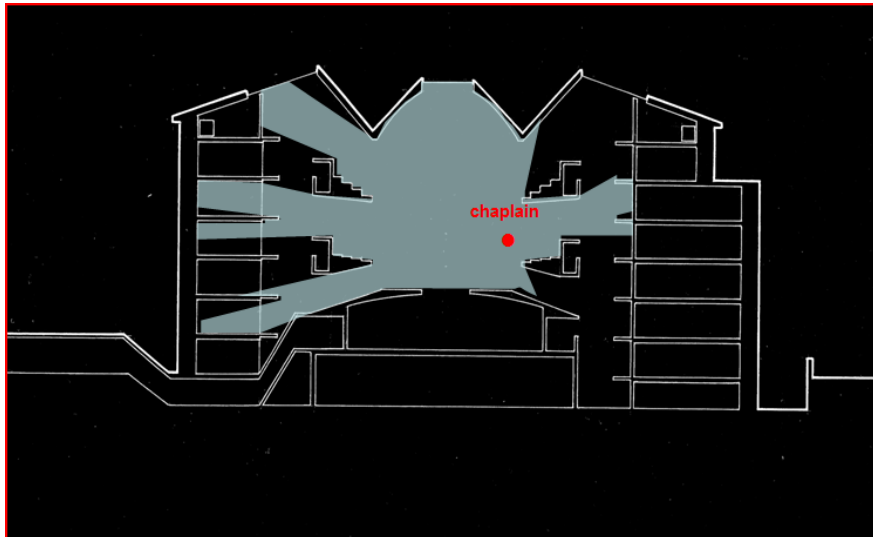
Why did Bentham put the well between cells and inspection galleries? To give the warders a clear view of course. But the gap also acted as a kind of *cordon sanitaire* between guards and prisoners. Bentham wanted to separate the two groups with more than bars, not just for security, but because of the fear of possible infection carried by the inmates. He wanted members of the public to be able to visit and see the prisoners without fearing for their own safety. The Panopticon was a zoo, with the prisoners behind bars and the visitors gaping at them across the well.[31] Bentham gets himself into some rather absurd ideas as a consequence of this arrangement, about ways in which for example the warders might open and close the cell doors remotely, across the gap, using long poles.

The seats around the two ring-shaped structures in the middle of the Panopticon, as mentioned earlier, were intended for those attending divine worship. The seating was not however for the prisoners but for members of the public visiting the building on Sundays. The prisoners - at least some of them - were to watch from their cells. Reveley's coloured cross-section (Figure 11) shows that the position of the pulpit was not to be central, since Bentham appreciated that people seated behind the preacher would not be able to hear him clearly - something he tested by actual experiment.[32] Given Reveley's position for the chaplain's head, Figure 16 plots the extent of what he could see if he could turn his head and eyes through a full 360 degrees. This is the chaplain's isovist. If the chaplain can see a point, then somebody whose head is at that point can see him. Anybody located within this isovist, that is to say, can see the preacher. Most people on the raked seats can see him, except those above his head. But he can only be seen by prisoners in three floors of cells opposite and perhaps just two floors of cells behind him. Bentham recognised this problem, and proposed that

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[31] Foucault in *Discipline and Punish* (p.203) speculates as to whether Bentham found part of his inspiration in Le Vaux's menagerie at Versailles, which had an octagonal pavilion with the King's salon at the centre, surrounded by the animals' cages. Bentham certainly had zoos in mind when he proposed a mass-produced sculpture depicting foxes and wolves to be placed above the entrances to penitentiaries. The implication was that these were ferocious beasts, but ones that there was some hope of taming. He even pressed the prospects of the Panopticon as a tourist attraction: '[i]s it possible that a national penitentiary-house of this kind should be more at a loss for visitors than the *lions*, the *wax-work*, or the *tombs*?' ('Postscript, Part II', Bowring, iv. p. 133) He does not however mention Le Vaux's building among his acknowledged architectural models for the Panopticon, which included the rotundas in Dublin and at Ranelagh Garden in Chelsea, and John Wood's Circus at Bath. Bentham's first inspiration was his brother Samuel's 'inspection house' manufactory in Russia in which he employed unskilled peasants under strict supervision in the 1780s.

the prisoners on the floors without views be moved out onto the access galleries on the floors above or below for the duration of the service.[33] How this was to be organised, and the prisoners kept in order throughout, he did not say. He did however specify that when brought out of their cells, the prisoners should wear *masks* to conceal their identities. Here is another consequence of not leaving the Panopticon empty, but placing obstacles to vision at its centre.

Figure 16: Cross-section of the 1791 Panopticon showing the isovist or extent of view available to the chaplain in his pulpit, and thus mapping the positions in the building from which he can and cannot be seen. Author's drawing.

One further aspect of Bentham's failure to think about how people might move around the prison is to be found in the design of the Panopticon's entrances. Bentham was reluctant to break the circular symmetry of the building with any ground level entry points: so he devised a tunnel ducking under the cells at basement level (Figure 10). This tunnel connected with the closed corridor giving access to the exercise yards, as we saw earlier. There was not really enough room to allow a staircase down from the inspection lodge to the tunnel. So Bentham ended up trying to justify what he called 'the inspector's drop'- a precipitous descent of twelve feet through a hole just two feet wide.[34] Not a place for corpulent warders: and it would not have been easy for them to get back up the steep ladder that Bentham envisaged.

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[32] 'Postscript, Part I', section vii, Bowring, iv. p. 78.
[33] *Ibid*, section vii, p. 79.
[34] *Ibid*, section xvi, pp. 92-94.

This detail could doubtless have been improved with a bit more architectural thought. But it would still have remained a bottleneck, and a highly dangerous feature for the security of the whole prison. It is in the very nature of the Panopticon idea that *the prisoners completely surround the guards* - not generally a good idea in penal design. It would have needed only a few prisoners to seize this exit, together with another passage through the 'dead part', and they would have had all the officers trapped.

And there is yet another problem of security inherent in the circularity of the Panopticon. The guards at the centre may be able to see into all the cells. But they cannot see the external walls of the building, nor do they have clear views of the grounds outside. Should prisoners manage to get out of their windows - and remember these windows are large to provide sufficient light for observation - then it is possible that they could climb down on ropes or knotted sheets, without being spotted. When Lord Westmorland the Lord Lieutenant of Ireland was shown the plans of the Panopticon his comment was brief and dismissive: '[t]hey will all get out'.[35] He was referring in part it seems to this feature of the design. Bentham was obliged to add the boundary wall around the site of the Panopticon to counter this objection. (Westmorland was also perhaps thinking about the fact that there were to be no shackles or leg-irons on the prisoners.)
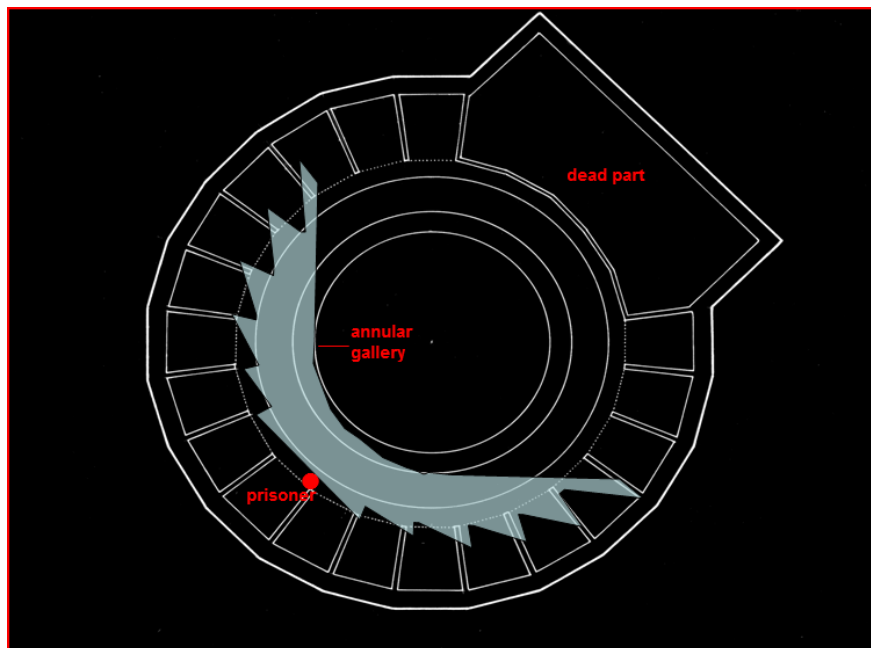
It was an important aim in the design of the Panopticon, as in other reformed penitentiaries of the early nineteenth century, that the prisoners should communicate as little as possible. One final problem of the circularity of the Panopticon is that it makes this goal extremely difficult to achieve. Bentham's original intention was that the cells would be for single prisoners; but later as mentioned he changed his ideas. The cells in the 1791 design are planned for two, three or four occupants. Of course the occupants of a shared cell could communicate among themselves, even if a general silence was enforced. Bentham's idea was that these groups should be carefully selected so as to discourage criminal conspiracies.[36] Communication between prisoners in different cells was still to be strictly forbidden.

If however a convict moves to the very front of his cell, he can see into twelve neighbouring cells on his own floor (Figure 17). This is the prisoner's isovist. (He can also see into cells on floors above and below.) He has a better view than the warder.

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[35] See Semple, *Bentham's Prison*, p. 120.

Bentham's answer was to paint a line on the floor of each cell a few feet back from the bars, and make it an offence for the inmates to step in front of it. This would obviously have been difficult to enforce. Furthermore, some prisoners can see into cells on the opposite side of the ring, across the central space, and communicate perhaps by waving or by other signs. Here Bentham's response was to propose sheets of canvas hung between the annular galleries. But these would have blocked the warders' views as well as the prisoners', and would have had to been taken down for religious services. Such problems were largely avoided in the notorious jails at Auburn (Figure 18) and Sing Sing in New York State, opened in 1819 and 1825 respectively, which were operated on the 'silent system'. The cells had open fronts with bars as in the Panopticon, but were arranged back-to-back in straight lines inside long halls. This meant that no cell had a view of the front of any other cell. At Auburn the walls projected a couple of feet in front of the doors, so making it quite impossible for prisoners to see into adjacent cells.

Figure 17: Plan of one floor of the 1791 Panopticon showing the isovist or extent of view of adjacent cells available to a prisoner at the front of his cell. Author's drawing.

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[36] 'Postscript, Part I', section v, pp. 71-72.

Figure 18: The old south hall at Auburn Prison, Auburn, New York. Photo from www.cpa.eku.edu/images/

To summarise the difficulties arising then from the very essence of the Panopticon's circularity:

- The prisoners surround the warders. Should the prisoners manage to seize the two entrances, they have all the staff trapped.
- If all cells are to be seen from the inspection point, then the whole of the centre of the building must be empty, resulting in much wasted space (as at Stateville). Any other structures placed in the centre of the building (annular galleries, a chapel) will partially block the inspectors' views of some of the cells.
- If the fronts of the cells are barred, Bentham's desire for 'one-way vision' is enormously difficult to achieve. Once the warders come out of their hiding places, the prisoners can see them coming.
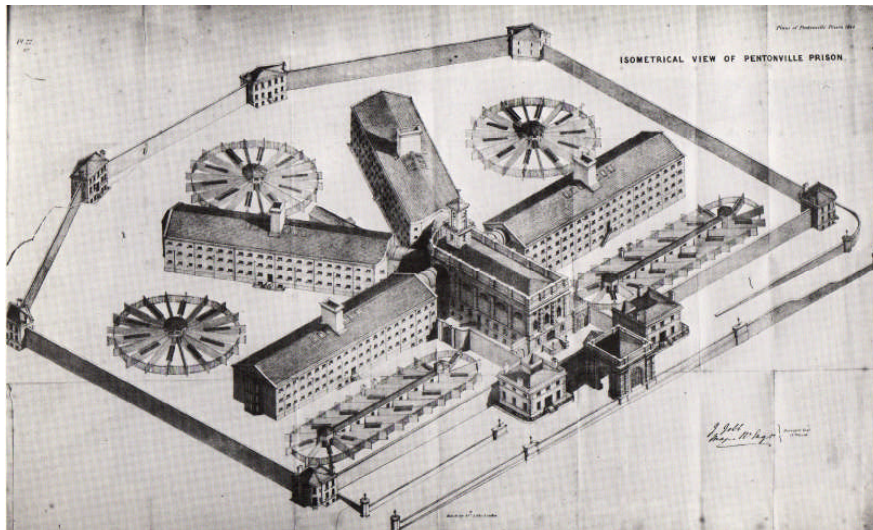- The inspectors cannot see the outside walls of the prison building or the yards.

William Crawford was sent by the British Government to tour the prisons of the United States in the 1830s and report back. His findings had a considerable impact on

the design of Pentonville. Comparing the radial plans of American prisons with circular plans of the panoptical type, Crawford makes exactly these last two points.[37]

- Unless special precautions are taken, the prisoners can see into neighbouring cells, and into cells across the central space, and can communicate.

Let us now compare the Panopticon in these terms with Pentonville, the prison in north London whose outstanding architectural characteristic is that the cells are arranged in straight blocks radiating from a central focus. Pentonville was built by Captain Joshua Jebb of the Royal Engineers with the architect Charles Barry and completed in 1842. Figure 19 shows Jebb's isometrical perspective of the site. Pentonville is discussed here as an exemplar of the radial plan because it was the first of its kind in Europe and because it was much copied in Britain and other European countries: the Government deliberately intended it as a model for other gaols. During the nineteenth century around thirty radial prisons were built in Britain, some with different numbers of arms, but all following essentially the same layout. Across the world there have been over 300 radial prisons of this general type constructed to date.[38]

Figure 19: Isometrical perspective of Pentonville Prison, 1840-42, engineer Joshua Jebb. *Report of the Surveyor-General of Prisons*, **London 1844**

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[37] House of Commons, 1834 (593), *Report of William Crawford, Esq. on the Penitentiaries of the United States Addressed to His Majesty's Principal Secretary of State for the Home Department.*
[38] N. Johnston with K. Finkel and J.A. Cohen, *Eastern State Penitentiary, Crucible of Good Intentions,* Philadelphia, 1994, p. 77.

However Pentonville was not by any means the first prison on a radial plan. It was closely inspired in turn by a series of American gaols built by the emigré English architect John Haviland, of which the first was the Eastern Penitentiary in Philadelphia, completed in 1836. There is a strong case to be made for crediting Haviland with the design of Pentonville, alongside Jebb and Barry. William Crawford illustrated the Eastern Penitentiary in his *Report*; and Haviland subsequently supplied other plans to Crawford, Jebb and Lord John Russell, secretary to the British Home Department.[39] Indeed R.S. Duncan, a former Governor, says explicitly in his history of Pentonville that the prison was built '...to the designs of John Haviland as approved by Jebb...'[40]
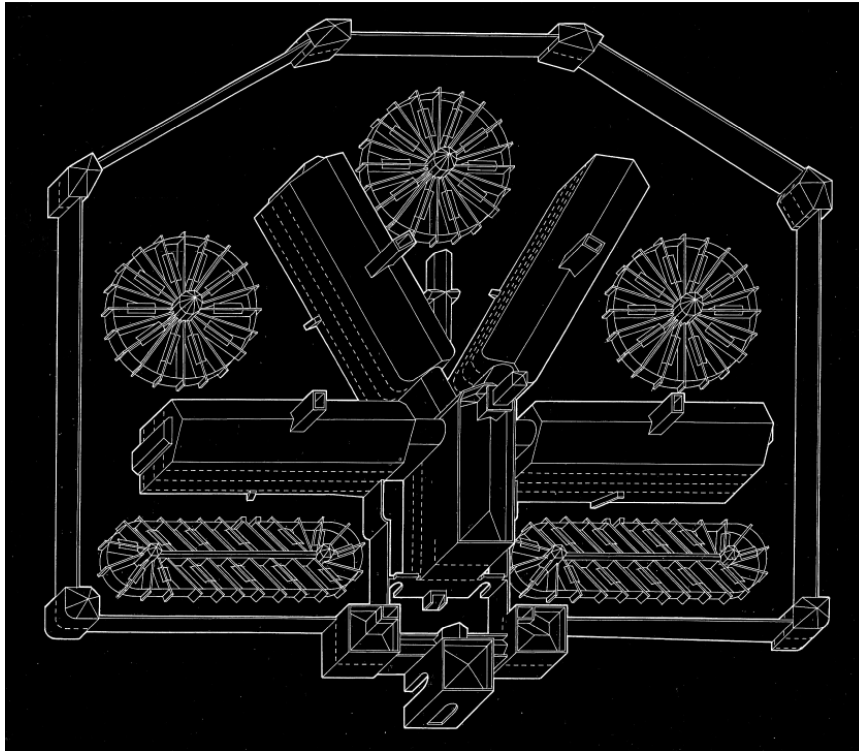
Figure 20 shows the layout in detail.[41] There is a perimeter wall with guardhouses looking *inwards*. A grand entrance gateway is flanked by houses for the governor and the chaplain. The prison is entered through a corridor, with the chapel above. The kitchen, laundry, baths, other services and stores are in the basement. Notice a first point of comparison with the Panopticon in the overall organisation of the plan. The area from which Pentonville is controlled is pulled to the front of the site, and is not now surrounded by prisoners. The inmates would have much greater difficulty seizing the main entrance of Pentonville and trapping all the guards. They might capture individual wings, but not the whole prison.

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[39] See Johnston, *Forms of Constraint*, p. 90. Of all Haviland's designs, Pentonville most closely resembles his original scheme for the penitentiary at Trenton, New Jersey.
[40] Duncan, *Peerless Priceless Pentonville*, p.15.
[41] For an extensive and thorough account of the design of Pentonville see Evans, *Fabrication of Virtue*, ch. 8, pp. 346-387.

Figure 20: General axonometric view of Pentonville Prison. Author's drawing.

The strange wheel-like structures in the grounds require some explanation. Pentonville, like Haviland's first American prisons, was designed as described for solitary confinement. The inmates slept and worked in their individual cells, which they left only to take exercise and to attend divine service. Elaborate precautions were taken to prevent prisoners from even seeing other prisoners on these occasions. The wheel shapes are made up from wedge-shaped exercise yards, one to a prisoner, supervised by guards in the central lookout huts. These are indeed truly Panoptical structures. Prisoners were brought to these yards one by one from the cells, with the guards using whistles or bells to coordinate the transfer process. The prisoners that is to say were separated in *time* as well as space. Perhaps this system was excessively cumbersome.[42] In any case it seems soon to have been abandoned in favour of a regime whereby prisoners took exercise together but wearing caps with long peaks (known as 'beaks') to discourage talking (Figure 21). The prisoners had to hold on to
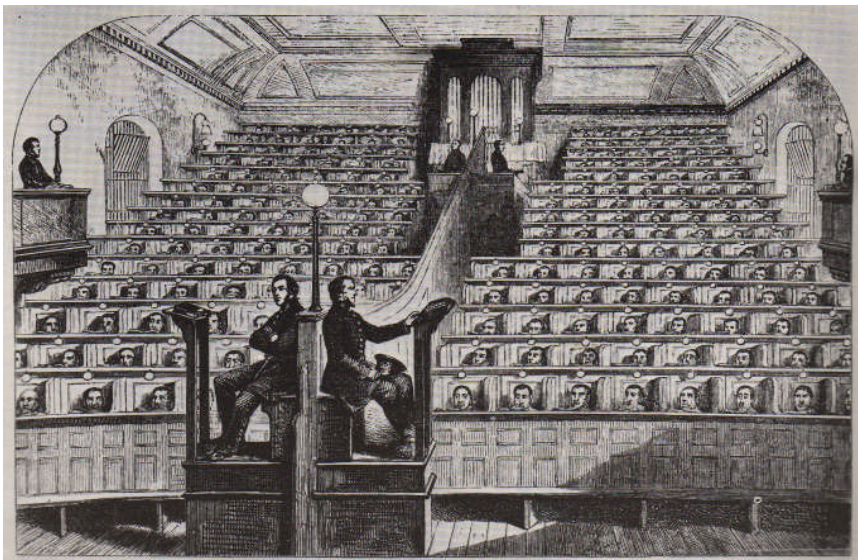
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[42] Evans, *ibid*, says (p. 361) that the circular structures 'were not constructed as designed'. However Duncan, *Peerless Priceless Pentonville* quotes (p.46) what seems to be a contemporary account (but without citation) which describes three Panoptical solitary exercise yards and two communal 'rope yards' as being in operation at the same time. And Philip Priestley in *Victorian Prison Lives: English Prison Biography 1830-1914*, 2nd ed., London, 1999 quotes (p.85) an account of the solitary yards by an Irish republican prisoner, O'Donovan Rossa, who actually experienced them. Priestley also gives contemporary descriptions of the system of moving prisoners.

the knotted ropes and keep them taut so that they would be spaced apart and walk alone, not in groups. During services in the chapel they were separated in wooden cubicles. Figure 22 shows the view from the pulpit. It was, as Philip Priestley says, a 'segregated congregation'.[43]

Figure 21: Prisoners exercising in masks or 'beaks' at Pentonville c.1860. Mayhew and Binny, *Criminal Prisons*
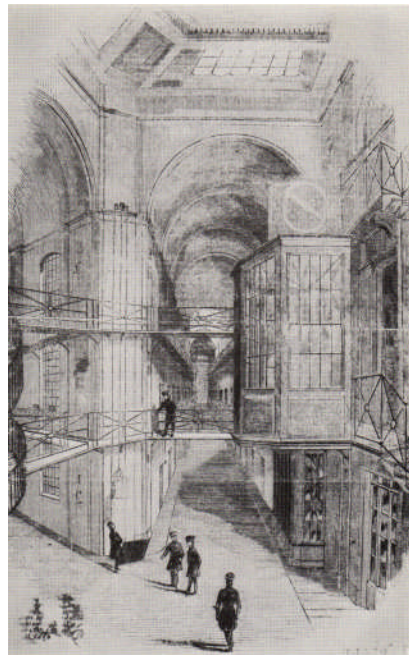

Figure 22: The chapel at Pentonville, as seen from the pulpit. Mayhew and Binny, *Criminal Prisons***.**

On entering the prison through the corridor beneath the chapel, one arrives at a central hall running the full height of the building. Here there was a series of glazed structures like bay windows from which the entire prison could be observed (Figure

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[43] Priestley, *Victorian Prison Lives*, p. 91.

23).[44] The cellblocks themselves have long central halls that rise to the roof. Access to the cells is given by open galleries. Two nineteenth century authors Henry Mayhew and John Binny wrote a book about the prisons of London in which they described this panorama at Pentonville as being like '...a bunch of Burlington Arcades, that had been fitted up in the style of the opera box lobbies with an infinity of little doors'.[45] The connotations of luxury and comfort conjured up by this comparison were perhaps unfortunate. But geometrically it is true that there is much in common between this type of radial cell block and the Victorian shopping arcade - the purpose in the arcade of course being to give the shopper an immediate and tempting view of every shop front on every level. It is no coincidence then that John Haviland, as well as designing prisons, also built some of America's first arcades.[46]

Figure 23: The central observatory at Pentonville. *Illustrated London News* **No.36 Vol.II 1843 p.4**

Figure 24 shows the isovist - the field of view - available from the central observatory. Every cell door can be seen - if distantly and obliquely in some cases - from this vantage point. The guards cannot see a large part of the prison grounds
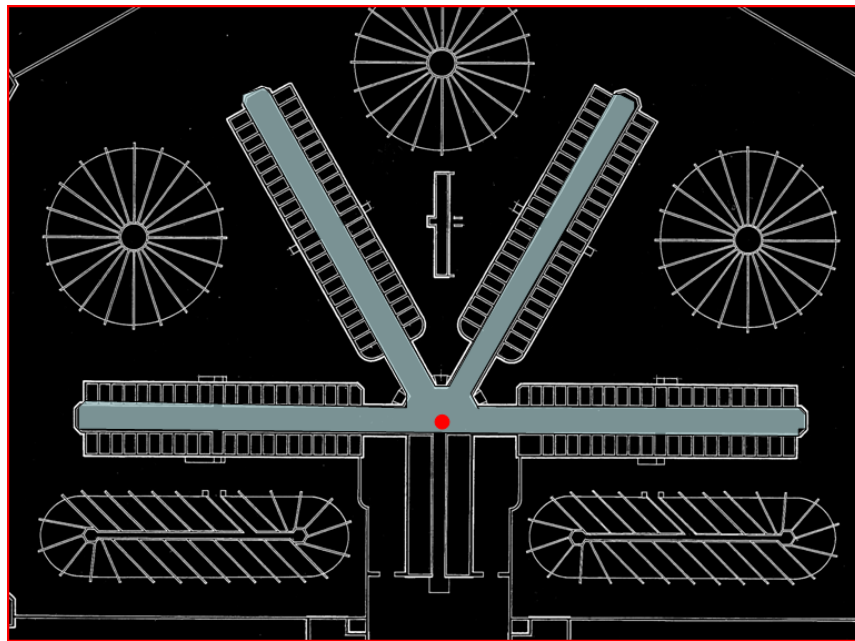
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[44] These glazed structures do not survive today; and the views down the cellblocks are now blocked by barred gates, new staircases, and wire netting stretched horizontally to prevent suicides. Observation (by human eye, not CCTV) is still however crucial, and when trouble erupts, extra guards are still summoned by whistle not by radio or phone.

[45] H. Mayhew and J. Binny, *The Criminal Prisons of London*, London, 1862, p. 120.

[46] In New York (c.1827) and Philadelphia (1825-27). See J. F. Geist, *Arcades: The History of a Building Type*, Cambridge, Massachusetts, 1983, pp. 443, 445 and 536-538.

outside the building from the observatory itself. But there are windows in the nearer parts of the wings from which this is possible; and the remaining external areas are of course covered by the peripheral guardhouses.

Figure 24: Plan of Pentonville showing the isovist or extent of view available from the central observatory. The doors of all cells can be seen from this point. Author's drawing.

It will be appreciated that there are some key differences in this geometry of oversight at Pentonville from that of the Panopticon. It is not now possible to see *into* the cells from the centre, only to see the cell doors: and the fronts to the cells are solid, not barred. In the Panopticon Bentham enclosed the warders, and made peepholes in their observation galleries from which they could spy on the prisoners. In Pentonville the spyholes have migrated to the cell doors, with the result that the inmates can see very little of the halls: while the guards can move freely without being so easily watched. A warder can approach right up to a cell door and the occupant cannot see him coming. The most important geometrical consequence is that the huge empty space at the centre of the Panopticon can be collapsed into the relatively narrow halls of Pentonville.

The way in which the prisoners are supervised is now distinctively different. There are warders who patrol the halls and galleries, and who can look in, without

warning, on the prisoners in their cells. And there are senior officers at the central observatory, who watch the patrolling guards, and can send reinforcements at any sign of trouble. In the Panopticon there was just one level of oversight or inspection: guards at the centre watched the prisoners directly. In the radial prison the supervision is two-level: staff at the centre watch the mobile guards, who in turn keep their eyes on the inmates. Bentham's ideal of continuous round-the-clock inspection is abandoned. But it seems that the extent of inspection offered by the radial arrangement was workable and sufficient for the control of the prison - as the success of the design would indicate. Sacrificing Bentham's central principle appears to have been a price that prison governors were prepared to pay for the other benefits brought by the radial plan.

The question remains as to whether it is reasonable or plausible to characterise the Eastern Penitentiary, Pentonville and all their radial progeny as 'Bentham-inspired' or 'Panoptical' - albeit in some rather broad and general sense - as Foucault and others have done.[47] This raises specific issues to do with architectural and intellectual influence that lie outside the scope of this paper. It is difficult to imagine that Jebb, who was deeply involved in penal reform and became the first Surveyor General of Prisons in England, would not have known something about the Panopticon. But it is also clear that he, with William Crawford and the British Government, looked rather to Pennsylvania, the 'separate system', and the work of Haviland.

Did Haviland owe anything to Bentham? What we do know for certain is that before he left for America Haviland was apprenticed in London to the architect James Elmes who built several small English gaols and in 1817 published *Hints for the Improvement of Prisons* in which he argued for the radial principle.[48] Norman Johnston in his recent study of the Eastern Penitentiary suggests that Haviland might have found precedents for the branching layout of the Philadelphia building in a series of provincial English and Irish radial prisons with which he would have been familiar via Elmes. These were built from the 1780s onwards, thus contemporaneous with the birth of the Panopticon, but before Bentham's work became widely known.[49] Further
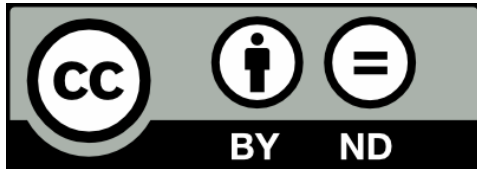
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[47] Michael Ignatieff is another who sees a direct continuation between the Panopticon and the 'horrors' of Pentonville. See *A Just Measure of Pain: The Penitentiary in the Industrial Revolution, 1750-1850*, New York, 1978.

[48] J Elmes, *Hints for the Improvement of Prisons*, London, 1817.

[49] Johnston, *Crucible of Good Intentions*, p. 35.

research might clarify these possible lines of connection. But no new documentary evidence will alter the fact that the radial prison was very different architecturally and operationally from Bentham's own cherished scheme, as this paper has shown.