

OPENING ADDRESS

Sir Norman Foster

Foster and Partners

Thank you, Ricky, for that very generous introduction, and good morning, ladies and gentlemen.

It's a great pleasure to be able to celebrate the coming of age of space syntax with Bill Hillier and his team. My colleagues and I have been collaborating with them for over ten years now, and although I myself am far removed from the academic world, it excites me to know, from the perspective of my own very demanding environment in architectural practice, that the techniques they have pioneered actually work. When I say it is a demanding environment, I mean that it is perhaps one thing for Bill as a fellow architect to convince me as another architect - we share a natural empathy - but it is quite another thing to be able to convince a developer, or a team of bureaucrats, far removed from that academic world.

Ricky has reminded us of the climate a decade ago. One of my colleagues, David Rosenberg, who was a student of Bill's, has told me that he considers our project for the redevelopment of King's Cross as pivotal, because at that time it was a clear, early demonstration that space syntax's theory could be removed from the academic world and have a real-life application.

Ricky is quite right when he talks about me as a designer in personal terms. If I think about my various interests as 'worlds', then yes, I love the worlds of analysis, of observation, of reason, of research - if you like, of the conscious - but I would be hypocritical if I did not say that there is another side to that balance - the side of passion, feeling, intuition, imprecision and the hunch - which appeals to me equally; and the techniques that Bill and his team have developed are, in a way, experiments in the interaction between those opposing worlds, the interface which brings them together. Using some slides I would like to give a few brief insights into a selection of our projects with space syntax.

This is the King's Cross area and Euston Road (Figure 1), and these are the two railway stations of King's Cross and St Pancras. Here, locked in the middle of this entirely urban part of the city, are these derelict railway lands. In common with other projects that we are working on together, our King's Cross collaboration had a deep concern with the nature of the urban environment. Here, following a competition for developers in which we were part of the winning consortium, the challenge was to create a mixed community on a 52-hectare site - a site locked inside an isolated world of canals, gasometers and industrial dereliction, and to bring it to life.

*Sir Norman Foster
Foster and Partners
Riverside Three
22 Hester Road
London SW11 4AN
England
tel: (44) (0) 171 738 0455
fax: (44) (0) 171 738 1107/08
e-mail:*



Figure 1. King's Cross and Euston Road

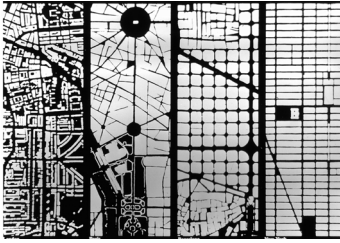


Figure 2. Urban fabrics of four cities: London, Paris, Barcelona and New York.

Given such an environment, in London, what would be the clues for a design concept? What, for example, would you conclude if you took this slice of London, and compared it with a slice of another city such as Paris, Barcelona or New York (Figure 2)? The distinctive urban grain you would discover in a small area would be your clue to revealing the rest of London. What do I mean by this? A directory of London or the signs on the front of almost any bus give the clues: 'Islington Green', 'Hampstead Heath', 'Shepherd's Bush', 'St James' Park'. Those names all refer to spaces - some large, some small, some formal, and some informal, and almost all green.

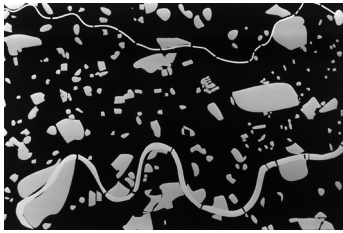


Figure 3. London's green spaces.

That very thought led us to draw our own map of London of which this is a part (Figure 3) showing it only in terms of the green spaces. Bill's version (Figure 4) of that was interesting because it recorded the site literally as a black hole. Bill's colour coding was worked out according to a system which, in lay terms, recorded degrees of connectivity, black denoting the maximum degree of integration. You can see quite easily from Bill's diagram how poorly this site is connected to its surrounding areas. Because of this, we were aware of that fact our competition entry was radically different from virtually all the other entries.



Figure 4. King's Cross Site, view of the axial analysis.

The difference shows at the important southern junction. This was the part of the site which immediately attracted all the developers. It was the 'rich' south where the commercial activity was concentrated. So most of the competitors gave up on the rest of the site and particularly on the 'poor' north, which in this case was literally poor, consisting mostly of deprived housing estates.



Figure 5. King's Cross Masterplan, view of the model.



Figure 6. King's Cross Masterplan (earlier version), view of the model.



Figure 7. King's Cross Masterplan, view of the axial analysis of the proposal.

Together we attempted to challenge some of those preconceptions. Our strategy was to create the opportunity for a major new green space, and we set about it in the tradition that I have referred to, through a mixture of thorough historical research and analysis, together with a degree of intuition. Armed with the tools of Bill's theory, we sought to create a new heart, (Figure 5) a new 'address', further north, that would be so significant that it would create a new centre of gravity to pull the scheme together socially, financially and commercially. This new heart, away from the railway and from the transportation interchange where there were some quite important listed heritage buildings, would be evidence that it was indeed possible to create from scratch a defined locality. This, centred on a green space, would sustain a rich balance of housing, commercial culture and leisure uses, as well as a degree of clean industry.

At this stage Bill pointed out that although we were seeking to stretch the area of influence out from this heart, our new central green space actually had many of the characteristics of a traffic island on a very large scale, in that it was effectively a closed system (Figure 6). This was in spite of the fact that already, conceptually, we were able to demonstrate that it had many potential social and commercial benefits, as well as a crucial function in the creation of a new 'address'.

In Figure 6 you can see a substantial grouping of commercial buildings to the south whose presence adds to the pressure to concentrate on the southern end of the site; but to do so exclusively would be alienating, and what we had to do was to strive for better continuity so that the south would be properly connected to the north.

The solution was a road - now known, quite seriously, as Hillier's Way. This was at a transitional design stage, where the new road is routing to the north: it is working better but it is still not quite flowing or, as somebody said at the time, it still has the cork in the bottle. At this stage, the design of the route still had some way to develop, but our tests showed that the connections were becoming much better. They were now very good across where they connect well to the top of the green space. Meanwhile, however, the integrated areas are fading into a lesser degree of integration. In some ways that is good, because this is a residential section of the site which should not be overheated with too much cross-circulation - but it still has an inherent weakness in terms of its connection to the north.

This final transition is where Hillier's Way comes to the fore (Figure 7). The traffic is removed entirely from this area, so that there is no barrier between the green space and the people on the other side of the perimeter road. A major part of the site is also influenced by the geography and economics of underground railway lines, so there's a kind of synergy with the movement below ground, and it becomes more economical to follow the curving arcs of the railway lines and build on top of them. So a series of factors is being drawn together until, finally, the crucial connection is established for pedestrians at a critical junction in the site.

By progressing the scheme towards its resolution in this way, we were able to maintain the confidence of the developer. They realised that they did not need to hold onto what they had formerly perceived as a key commercial remnant to the south. All the studies had convincingly demonstrated the creation of a new nucleus around the



Figure 8. Study Area for the World Squares for All Project.



Figure 9. Georgia Spiliopoulou of the Space Syntax Laboratory conducting pedestrian movement counts.



Figure 10. Trafalgar Square: (a) north pavement of the square near the National Gallery; (b) south pavement on the north side of the square.

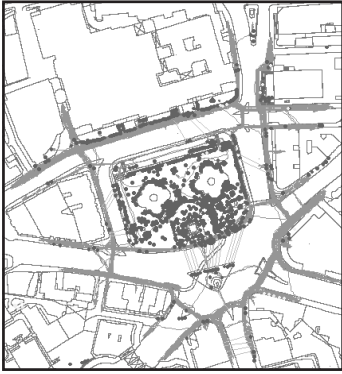


Figure 11. Static use in Trafalgar Square during a typical summer lunch time period.



Figure 12. Illegal crossings in the south of Trafalgar Square to the Charles II traffic island.

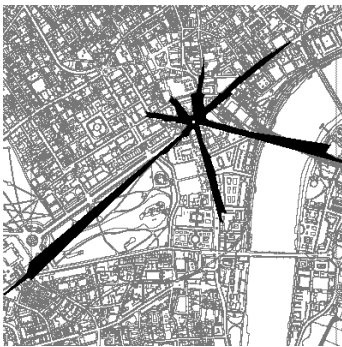


Figure 13a. Visual field from the Charles I traffic island in the south of Trafalgar Square

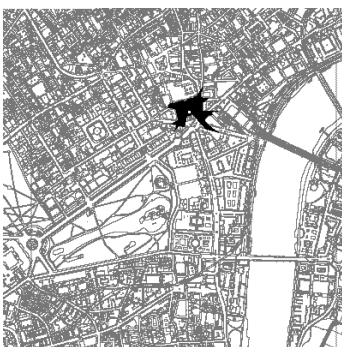


Figure 13b. Visual field from the geometric centre of Trafalgar Square

park - a social focus - an 'address'. This approach also released pockets for residential development which, within the overall flow of the system, retain cul-de-sac qualities giving them a proper degree of privacy and protection.

That was 10 years ago. Now I'd like to come to the World Squares Project. The study area for this project extends from Trafalgar Square, down Whitehall to the Houses of Parliament, and beyond Parliament Square (Figure 8). In the opposite direction it extends from the Embankment across Whitehall to St James's Park. The aim of the study is to address a number of interrelated issues including access, the balance between cars and pedestrians, improving the setting of historic buildings, enhancing public transportation, and raising the quality of urban life through design.

You will recognise Georgia Spiliopoulou, one of the space syntax team (Figure 9), at work logging the movement of pedestrians. Meanwhile, we are observing and starting to draw some 'intuitive' conclusions. It is not hard to see how little space there is on this very important side of Trafalgar Square (Figure 10a), the setting for the National Gallery. It is so tight that people climb up onto the grass above the narrow pavement to try to overtake the crowds of people blocking the way. The road is obviously a significant barrier; yet the pavement on the other side is over generous, deserted and hardly used (Figure 10b).

If you consider that this study area constitutes the hub of the nation - with 170 listed buildings, nearly 30% of them Grade 1 - then you might understandably question the quality of the settings for these historic buildings. The very cramped space in front of the National Gallery on the edge of a wall of traffic combines to produce one of the worst examples.

So what were the conclusions from the observations and analysis of pedestrian movements? Interestingly, they confirmed what you observe - namely that the centre of the square is almost empty and under-used (Figure 11). People hover around the edge. The [light grey] dots are people in suits, who are assumed to be Londoners, but the majority are tourists. We noticed that there was a significant gathering to the southeast, which we presumed must have something to do with the corner where feeding pigeons is a popular pastime. But we were mystified by what proved to be a much stronger flow of people, drifting right to the southern-most point of the Square and beyond, and we could not understand why so many pedestrians seemed to be risking life and limb to get to that one little traffic island (Figure 12). Indeed, our findings showed that significant numbers of people were crossing to it despite an absence of traffic lights and no pedestrian crossing.

As a team we decided to walk through Trafalgar Square, and around the study area, as if we were visitors. We had all been living in London for 30 years or more, but had obviously never behaved as if we were tourists. Even Tim Stonor braved the hazards with the rest of us to get across to that island and find out why so many people were wanting to reach it. The team finally reached the island - and still intact - beside the equestrian statue of Charles II. This island is, incidentally, the geographic centre of London, the point from which distances to the capital are measured.

So what is it that draws people here? Well, the answer is that it is the very best vantage point from which to photograph the whole panorama - the routes, the National Gallery and other historic buildings and the Square itself - all the picture-post-card images that visitors want to capture on film or video (Figure 13a and b). From the south side of Trafalgar Square itself you see remarkably little except for the quaint souvenir stall and the people sitting around the edge. Discovering this told us a great deal and started to provide a stronger basis for our design work.

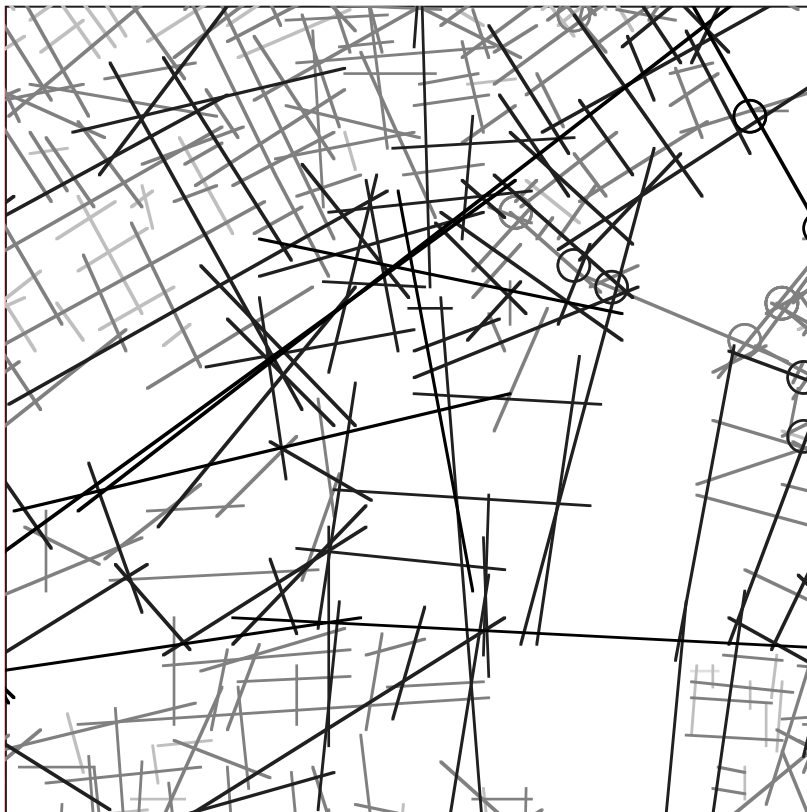
The combined team also tracked people emerging from the access points to the underground system, following them for 10 minutes, of course very discreetly! Again, the findings were interesting: it was clear that people had great difficulty in reaching whatever point it was they were aiming for, many having accomplished the feat of getting onto the island and photographing from it. That was relatively easy compared to the task of actually getting down Whitehall, a major destination (Figure 14). By the time they had braved the traffic, it was no surprise to find that they all gave up halfway down. We found that, instead of going all the way to Parliament Square, people make their way down from Trafalgar Square and then seem either to dribble back or give up and peel off to the sides. Similarly, in a parallel exercise in which pedestrians were tracked from Parliament Square, they were observed to go north



Figure 14. View south down Whitehall.



of the World



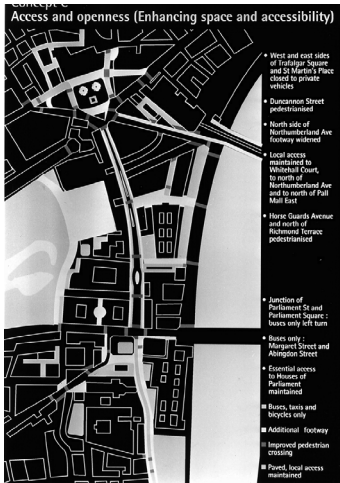


Figure 18. World Squares for All proposed pedestrianisation and urban quality enhancements.

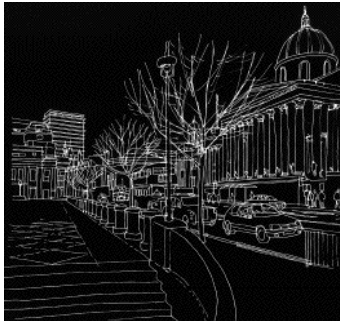


Figure 19a. Trafalgar Square before the intervention

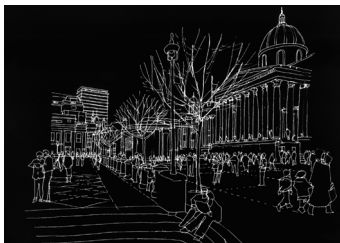


Figure 19b. Trafalgar Square after the intervention

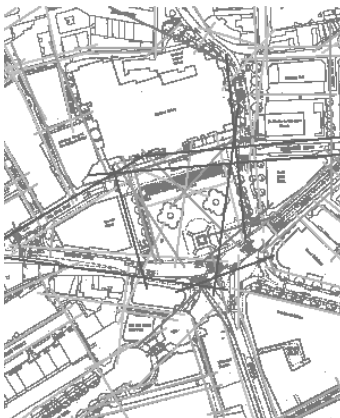


Figure 20. Detailed axial analysis of Trafalgar Square after the intervention

Square is about the People, and Buckingham Palace the Monarchy (Figure 15). Crucially, there are a number of cross-routes between them.

Coming now to how these cross-routes work, the space syntax diagrams show the greatest degree of integration marked in (Figure 16). You can see very clearly from how the different routes have been weighted. It is evidence of what an excellent design tool this theory is, and has confirmed many of our earlier thoughts. Meanwhile, narrowing the question of cross-routes down onto Trafalgar Square itself reveals the depth of that problem. Cross movement is largely dead-ended. The Square is empty, and the links are really quite weak (Figure 17).

Figure 18 is one of a number that I will be showing to support our propositions at this stage of the project. It shows the way in which Trafalgar Square could be pedestrianised as part of a wider series of proposals in the study area. Before expanding on our thoughts for Trafalgar Square, I would just mention that the sources of our proposals have an interactive relationship to each other. Many have emerged from these experiments; but they have also come out of the brief. They have resulted from our observations, but at the same time here is constant crosschecking between those findings and public consultation. It is this symbiosis which demonstrates to me what a very creative tool the space syntax theory is, and I think this is proved conclusively by the crucial nature of some of the most detailed findings: although many of them are so subtle you might almost miss them, they often emerge as highly significant.

Let me give you an example of that: here is a corner of the square shown before our design proposals are implemented (Figure 19a); and this is a sketch showing what might happen afterwards (Figure 19b). You can see the way in which this area, instead of being full of cars, taxis, buses and trucks is now a really handsome setting - a space for the people. It is the treatment of the corner which is crucial. You almost miss, looking at the drawing, the fact that the wall has been removed there. Yet the potential for diagonal movement as a means of cross-circulation is dramatically changed, as shown by the prediction here. In this diagram (Figure 20) you can really start to see how much more improved and intense the whole Square becomes - both literally in terms of the graphics [darker colours are predominant here], and socially. It will be better used and will also be a better experience. Our system continually shifts from the wider scale of London down to significant details and then back up to the totality.

For this event I have ended up talking in an impromptu way rather than reading my prepared speech. But I would however like just to read one small extract from it, in which I wrote the following: "Creating connections, demonstrating them and enabling people to make them - these are the grammatical keys to urban planning. space syntax's particular kind of analysis, for all that it is objective and scientific, answers the instinctual demand for orientation which I, as a lover of cities, care about passionately".

In that sense it is space syntax's invaluable theory which will hopefully enable us as architects to bring those connections to life. Thank you.