

Do Architects Draw Trees? – Shifting the Perception of Urban Landscape Form

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Abstract

Architects are beginning to embrace the notion of landscape and, moreover, to acknowledge the conceptual scope of a dynamic and creative synthesis of ecology and materiality. In so doing, the conception that architects could not (or should not) draw a tree, is being consigned to the landfill site of antiquated practice.

There is an increasing acceptance amongst planners, urban designers and governments that the greening of urbanity is necessary to, and indicative of, a viable, sustainable future. However, whether or not the traditional design rationale delivers the necessary innovative outcomes is open to question. The visual homogenization of urban developments within our cities is symptomatic of both hackneyed design orthodoxies and a tokenistic approach to sustainable practice.

The paper debates the proposition that traditional design values and practice contribute to the fragmented adoption of genuine sustainable ecological applications within the urban landscape. It contends that rather than enriching, civilizing and sustaining urbanity; the reliance on time-honoured practices contributes to the establishment of bland and fundamentally unsustainable public spaces. As the demarcation between landscape and architecture becomes less profound the role of ecology is also viewed as integral to 'placeness'. The fusion of spatial form and ecology serves as a valuable addition to sustainable development. For any urban development to maximise claims of sustainability, architects, landscape designers and planners need to demonstrate a more dispassionate approach to implementing change.

Keywords: *Architecture, Sustainability, Place, Urban Landscape, Ecology*

1 Introduction

In his essay “Terra Fluxus” the landscape architect James Corner (2006) reflects on the historic inability of architects to draw trees. The broader point of course, is that until relatively recently architects have shown little interest in site and landscape. However, the growing awareness of environmental and global ecological issues has rekindled an appreciation of the landscape as a model for dynamic sustainable urbanism. The application of diverse ecologies within cities is viewed as a valuable addition to energy conservation and also a fundamental element in establishing unique regional identities. The estimated exponential rise in urban population densities (United Nations, 2004) raises distinct sustainability concerns. Given the dramatic increase in city inhabitation it is increasingly important that people feel ownership and responsibility for shared public spaces. The emotional, cultural and social well-being of urban communities is dependent on numerous considerations and factors. The establishment of a sense of place and the role of ecology in achieving this is a primary element in the ambition of urban sustainability.

Throughout this study, the role of ecology within the urban landscape and its contribution to the objective of a more sustainable urban form is discussed and analysed. The arguments for more ecologically diverse urban landscapes are convincing. Accordingly, this review focuses on the current issues concerning the realisation of a more ecologically dynamic urbanity and, as such, concentrates on three main subject areas.

Section two. The arguments for high-density urban living and their relationship to sustainable objectives are well established. Much of the debate centres on energy efficiency and transport, or energy efficiency and urban form, but energy issues need to be considered against socio economic and environmental objectives (Frey, 1999). As populations increase, designed ecology has an important role to play in the environmental vigour of our cities, and as such the potential for more imaginative design driven strategies for the greening of urbanity are considered. In reality, a paradigm shift is required in achieving a more ecologically inspired urban landscape and the potential for this occurrence is evaluated.

Section three. The creation of the urban landscape is a cross-disciplinary venture, defined by the contribution of architects, designers and urban designers/planners. Modernism and postmodernist sensibilities have ostensibly determined the designed characteristics of urbanity, but the reliance on ‘traditional’ methods has arguably run its course. The rationale for a more progressive approach to the development of urban landscapes is reviewed in consideration of the advancement of alternative design concepts and implementation strategies.

Section four. The establishment of place is central to the sustainability of urbanity. Placeness and how this is established in relation to the combination of materiality and ecology is a fundamental element in establishing unique regional

identities. How design professionals rise to the challenge of creating ecological place based innovative applications of ecology within urbanity is fundamental to this process. Accordingly, alternative models of designed landscape ecology are reviewed and discussed.

The three subject areas form the basis of a more place based, ecologically driven conceptual and practical approach to the realisation of viable sustainable urban landscapes.

2 Population, Urban Ecology and Shifting Paradigms

Urban communities are essentially identified by a high volume of people and activities within a space commensurate with the surrounding regions. The compact nature of human interaction and habitation within cities is related to high levels of culture and civilised expressions of social behaviour (Lozano, 1990). The arguments for higher densities within urbanity in connection to the aspiration of sustainable living are well established, and advocated in U.K. government planning and guidance documents; for instance, 60% of all new development is destined for brown field re-use (Williams, 2000).

The relationship between urban activity and density is fundamental to the notion of urbanity. To precipitate the human interactions that make urban activities and functions possible, it is necessary to have certain densities or thresholds of people in a given area. It is argued that a greater number of people manifestly increase the potential for the number and variety of activities, contributing to the richness of a community. Therefore, Lozano reasons; urbanity is based on density.

Globally, urban populations have increased much faster than rural populations which have essentially stopped growing, with all future expected growth to occur in urban areas (United Nations, 2004). The essential urbanisation of humanity raises inevitable environmental concerns at a local level, but have an impact beyond city limits, regionally and globally. The ecological footprint of a city can be hundreds of times as large as it's physical size for various resources. Urbanised areas cover 2% of the earth's land surface, but account for 78% of carbon emissions. Similarly 60% of water use and 76% of wood used for industrial purposes occur within urban areas (Brown, 2001). Impervious surfaces within cities can markedly alter the flow paths of surface water leading to flooding and contamination through the overloading of sewerage systems (Wu, 2008). As concrete and tarmac replace natural habitats the effects of altering land-cover patterns can influence local and regional climates as a result of energy balance and surface radiation. Furthermore, high densities of people, domestic plants and animals can potentially alter the variability of nutrients, energy, organisms and water between landscapes (McDonnell and Pickett 1990; Niemela 1999; Grimm et al. 2000).

Given the environmental issues connected with cities, ecology should have much to offer. The scientific justification for eco-diversity as a basis for

sustainability within urbanity is well researched and persuasive, particularly the rationale for “landscape ecology” (Wu, Hobbs, 2002). Roadside plants for example help reduce carbon monoxide levels and wall-climbing plants can reduce summer temperatures on a street by 5% (Hough, 1984). The emerging field of sustainability science focuses on the active interaction between nature and society (Kates, et al, 2001, Parris, Kates, 2003, Clark, Dickson, 2003). Though sustainability science provides a scientific rationale for landscape ecology, combining urban morphology with ecological functioning is not straightforward. As Ahern (2005) notes, assimilating ecological principles with architecture, planning and design is in its infancy and as many challenges as well as opportunities are expected.

Environmentalism has been a source of division within the field of landscape architecture where various polarised rhetorical positions have been expressed on the preservation, ecological and integrative nature of the subject. In reality however, despite countless perspectives on environmental issues being expressed, for most part professional practice does not support the rhetoric (Nadenick and Hastings, 2000). The primary challenge to the designer is the mediation of the seemingly disparate disciplines of art and science. The disconnection between environmental principles and form generation is the crux of the matter (Meyer, 2000). Accordingly, Robert Cook (2000) reasons that a “new paradigm” has emerged due to the dynamic change in the underlying assumptions supporting an understanding of the natural world. He contends that a greater understanding of ecology aids the designer as design projects usually involve intervention and rearrangement of the land. A biological understanding of the consequences would help and predict the control and outcome of the intervention. In other words the designer is able to identify an aesthetic that will have minimal impact on the ecological function of the site. Additionally, the narrative of the ecology and feelings provoked by an ecological perspective, could serve as an aesthetic and therefore inspirational challenge to the design process.

The effort of urban planners, architects and designers to integrate urban morphology with ecological principles is a positive step forward. This when combined with the willingness of ecologists to acknowledge the sensibilities of the design professions bodes well for the future (Wu, 2008). If the paradigm shift necessary for the development of a more ecological designed urbanity is to be realised, a more trans-disciplinary approach is fundamental to the renegotiation of designed nature. According to Ahearn (2005), in order to realise the trans-disciplinary integration of landscape ecology and landscape design, an evolutionary three-stage process is required. Generally, he suggests the first stage is the articulation of basic theory and first principles, synthesizing the knowledge base, and framing questions for future research. Secondly, planners and designers ask intelligent questions of scientists based on their understanding of landscape ecology theory and principles. The third stage should be an integrative reciprocal process involving the exchange of principles and knowledge relating to how science informs design and design informs science.

According to him the result could be prescriptive and descriptive resulting in more ecologically consequential designs. Similarly, Hersperger (1994) reasons that a closer relationship between landscape ecology and planning and design is mutually beneficial. In a changing landscape, ecology provides the planner/designer with scientific information relating to the human interaction with nature. In turn the designed landscape serves as an area of experimentation to scientists. With increasing urban population densities the role of ecology in establishing a more sustainable and liveable urban landscape form, largely depends on a trans-disciplinary approach. However, if this is to be realised, conventional approaches to design processes should be challenged and designed ecology responded to imaginatively.

3 Design Orthodoxies and Alternative Perceptions

The integration of ecology and design holds great promise for a more nature inspired urbanity. The marriage of logical and intuitive thinking and science, designed landscape pattern and ecology, provide a basis for the planning and design of sustainable environments. In reality, for most part the spatial and formal characteristics of cities continue to be determined by modernist and postmodernist design sensibilities. Whereas modernism responded to the challenge of creating social order in mass societies through functionality and structure, its focus on the architectural object rather than the requirements of the site (Ellin, 1996), runs counter to notions of ecological integration. Post modernism, by contrast sought to address the wider needs other than the rigid adherence to form and function. In other words there was an attempt to address the relationship between human experience and architecture, a regard for architecture within the context of society (Huxtable, 1981). Post modernism advocated a revitalisation of vernacular architecture that responded to social, economic and functional circumstances. Whilst this view of postmodernism strengthened the notional connection with humanity, some looked beyond the aesthetics, playfulness and superficiality to observe something more sinister. Jameson (1991) argues that postmodernism represented “the cultural logic of late capitalism”. Post modernism uses familiar and borrowed elements from older styles such as arches, columns and pilasters that are more recognisable and accessible to prospective consumers. This essentially populist element of post modernism, when lacking contextualisation, it is argued, promotes opportunities for profit making and consumption. In addition to this, postmodern urbanism’s preoccupation with irony and surface treatment make it correspondingly culpable of neglecting the human element (Ellin, 1996).

The reliance on modernism/postmodernist doctrines can be regularly observed in the designed application of urban ecologies. The traditions of the utilitarian modernist approach are conspicuous in recent brown field revitalisation developments such as “Spinningfields” in Manchester (Figure 1). The landscaped areas act as a backdrop for the grand architectural statement, much of the public space giving the impression of space left over after planning. The developer’s aspirations for sustainable development (Allied London, 2005)

are not reflected in the application of ecology, trees are planted in rows and the grassed (foliage in a box) designated recreation areas are uninspiring and uninviting (Derbyshire, 2009). Developments such as “Spinningfields” are indicative of the perception that most landscape designs are replications of one another, the inevitable consequence of which resulting in humdrum and clichéd designs (Bell, 1999). The visual, spatial and ecological banality of such developments is a reflection of this replication, but is also a demonstration of the over-reliance on modernism and post modernist credos.



Figure 1. Public space, Spinningfields, Manchester

Modernism and post modernism’s continued influence on the urban landscape is not in doubt, given the cultural complexities of urbanity. They represent a connection with the familiar, and in the absence of any meaningful adoption of a trans-disciplinary approach to developing urban form, will continue to determine the spatial characteristics of cities. However, there are more progressive propositions extended for the realisation of a more sustainable urban form, such as the emergent notion of “landscape urbanism”.

The “landscape urbanism” agenda is founded in the recognition that the landscape can act as a model for urbanism. Some architects, designers, urban planners and designers are beginning to move to a shared form of hybrid practice where the landscape is a formative element. This represents a departure from the traditional view of the landscape being separate to the city. The notion of the ecology of the city and the cultural, social, and economic consequences of this symmetrical existence are still to be fully researched and understood (Corner, 2006). The emergence of “landscape urbanism” is a reaction to the polarising arguments of pro and anti urbanisation ideologies. This unorthodox approach to landscape study and practice is not newly exclusive to contemporary design

disciplines. A more progressive approach to ecological urbanity can be formulated through existing knowledge structures, such as rethinking the nature of place in small patches of urban space within what Berger (2006) describes as “drosscape”. Berger attaches no value system to these post-industrial spaces; they are neither bad nor good, but in need of new conceptualisation. Similarly, Hough (1984, 1990) challenges the conventional aesthetics of the formal designed application of urban ecologies and contends that the landscapes of nature, with their origins in poverty and necessity hold significant lessons in the pursuit of a more sustainable urban form. He acknowledges the validity of the vernacular landscapes of forgotten places, rooftops, pavements or wherever a foothold can be gained. This natural processes driven ecological approach to designed urban ecology runs counter to the established designed landscape of mown turf and regimented planting, but ultimately frames the dilemma in establishing the “new paradigm”. The challenge for the urban design professions is to channel existing knowledge structures in creating a radical renegotiation of placeness within such spaces. As Waldheim (2006) notes, it is the progressive renegotiation of existing city form, particularly in the context of post-industrial sites and public infrastructures that determines the “new language” of “landscape urbanism”. This reversal of normal processes, it is argued, paves the way to a more hybrid urbanism resulting in a reconstituting of natural ecology and therefore more ecologically balanced inner city form. However, Shane (2003) notes that the search for this new type of urbanism with its objective of facing up to the ecological realities of the “real world”, risk abandoning fundamental elements of urbanity such as equity and social justice. The perception that a more ecological response to the designed cityscape neglects to pay adequate attention to public life and cultural imagination, ultimately frames the debate. The interaction between culture and nature is a necessary feature of urban and rural landscapes (Naveh, 1995; Palang and Fry, 2003) and are integral to their sustainability. Accordingly, Daniel (2001) observes, that despite ecological awareness within landscape design becoming more pronounced, the cultural and aesthetical attributes remain vague and disputed. Fundamentally, analytical deliberations over the nature of a more sustainable urban landscape form, though useful, as yet, are primarily incidental to culturally accessible urban spaces.

4 The Ecology of Place

The emergence of design theories can often be traced to larger philosophical and conceptual traditions. This is certainly the case with phenomenology and its application to environmental perception, in the writings of Christian Norberg-Schulz (1980). He draws on works such as Heidegger’s seminal work “Building Dwelling Thinking” (1971) and Husserl’s “The Idea of Phenomenology” (1936), to introduce the notion that people can find meaning in the physical elements of spaces and places. Schulz reasons that the dogmatic and mixed messages of modernism combined with its universalising nature are incompatible with creating a unique physical character and the essence of place. Put simply, he suggests that designers/architects should ‘concretise’ the physical characteristics

of place by identifying and contextualising notions such as materiality, texture and sensory experience in the design process. As a marker to the establishment of designed placeness his thesis acts as a reliable foundational element, but also as a narrative for the establishment of a more sustainable urban form. For instance, materials used for building have traditionally been acquired locally and have consequently created unique regional identities and a sense of place. Utilising local materials is also a benchmark for sustainable practice, their embodied energy cost is lower, are more recognisable and, as a result help to create emotional attachments to the places they are employed. The landscape and ecology of cities also play an important role in shaping emotional and cultural attachments to places. Landscapes are tangible and public expressions of public and cultural values; as Lynch (1971) observes, they are “enormous communication devices”. Creating a sense of attachment to these shared spaces is all-important, in the absence of this sense of attachment or stewardship people are less inclined to care about or look after shared public places (Nassaur, 1997). Expressing this attachment to places and the role of ecology and engendering a connection and relationship with our natural environment within urbanity is a fundamental challenge facing architects and designers. With this in mind, some of the more innovative responses to the ‘greening’ of urbanity should be evaluated.

Green roofs for example, are increasingly being incorporated within new architectural projects and also included on and within existing structures; they are simply roofs that bear vegetation (Figure 2). They have grown in popularity recently, for instance, London has installed 230,000 square metres in the last four years (Martin, 2009), and Chicago now has approximately 278,700 square meters of green roof space (Cantor, 2008). They are also described as eco-roofs, living roofs and brown roofs, but essentially provide an option for the adoption of a holistic, multi-disciplinary move towards the notion of living architecture.

The constituent elements of green roofs can vary depending on the needs of the client and location of the building. Generally, they are comprised of a substrate material usually composed of local non-organic materials that primarily act as a drainage medium. This underpins a vegetation support course of predominantly organic material, acting as the growing medium. The plant materials can vary depending on climatic and design requirements, but are typically sedum mixtures, herbaceous materials and grasses.

Living walls are a correlation to green roofs, the vertical application of green roof processes (Figure 3). There are two conventional types of green wall systems, façade greening and living walls. For most part living walls are part of a building envelope system, in that plants are grown within a modular walls system. Green facades are generally trellis or training structures that support vertically growing plants that are not attached to the building. Living walls can improve indoor air quality by removing toxic chemicals and carbon dioxide and can insulate against summer heat and winter cold (Cantor, 2008).

Living walls are a visible reference to living architecture and also connect urban dwellers with nature. Although construction materials and installation techniques are similar regardless of location, different climates and economies can determine local substrate materials and plant materials. The use of local materials and ecologies affords the architect and designer the opportunity to create corresponding regionally distinct living architecture. The living wall's principle benefit when compared with green roofs is its visibility. Green roofs are a valuable contribution to the goal of greener urbanity, however most are privately owned and therefore nobody gets to see them (Martin, 2009). If people are to engage and feel ownership of a more nature inspired urban landscape they need to feel part of it, a visual attachment to the ecology of place.

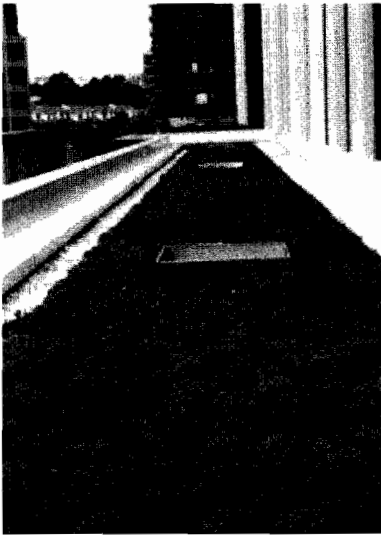


Figure 2. Green roof, London



Figure 3. Consorcio building, Santiago

One of the better examples of the new paradigm response between designed nature and the urban landscape is the “High Line” in New York City. Originally an iron clad raised freight train track built 30 ft. above the street in the 1930’s until its disuse in 1980, the “High Line” has been transformed into a public park (Figures 4 and 5). The rail runs north to south from the terminus on 30th Street to the meatpacking district and is a visually distinct reference to post-industrial age resilience. Rail tracks and planted sections harmoniously co-exist with engineered sections and designed paving systems. The plantings are inspired by the fortuitous self-seeded landscape that grew in the track’s period of dereliction. Grasses trees and shrubs were chosen for their colour, texture and sustainability, with the focus being on local species. Perhaps surprisingly, the radical complexion of the development was embraced by the city, and the risk appears

to have paid off (Martin, 2009). Crickets can now be heard in lower Manhattan and the public has responded positively, nature is no longer ‘far away’.

The movement away from the established ‘traditional’ representation of urban landscape applications, as represented by the “High Line” provides a potential benchmark for the future development of post industrial or brown field sites. Whereas it demonstrates a more nature driven approach to urban landscape design, it also establishes the function of the vernacular landscape in establishing a regional identity. The connection with local ecological values and principles is a marker to establishing a sense of place (Hough, 1990). The successful establishment of “placeness” is essential for the realistic sustainability of urban spaces, the philosophical foundation stone of a more liveable urbanity.

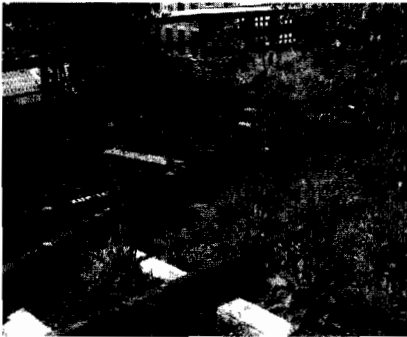


Figure 4. Tracks and plantings.



Figure 5. Paving sections.

5 Conclusion

Cities are becoming more crowded, as populations increase the need to provide a more liveable environment becomes essential for the emotional health of its inhabitants. Globalisation is leading to the homogenisation of towns and cities. The same shop fronts, products and commercial developments can be viewed with repetitious regularity in cities, countries and continents. Technology, consumer taste and global markets predominantly define building form.

A more ecologically inspired urbanity can be seen as an antidote to the standardised blandness of ‘re-vitalised’ developments, a more breathable, energy efficient and aesthetically pleasing vision of urbanity. The “new paradigm” objective of viewing landscape ecology as a model for designed urban form is well established though rarely practiced or implemented. The shift from the perception of the ecology in cities to the notional, ecology of cities, is fundamental to the debate. The trans-disciplinary approach to a more ecological urban form remains an aspiration. However, there are very few examples of good practice. Although the perceived hostility of ecologists to architects is no longer accurate, the discussions and possible practical applications of designed nature are primarily confined to academic studies.

Similarly architects and designers are more open to the proposition that science can be a positive addition to the creative palette. The existence of the High Line is a tangible reference to good design, but also the innovative role of the ecological landscape in engendering emotional well-being. The High Line's success, acts as a marker of the viability of more ecologically inspired designed urban spaces. It also fundamentally highlights the reality that designed urban landscape ecology can be culturally and aesthetically accessible, without resorting to clichéd design solutions.

Green walls and roofs are a progressive addition to a more nature inspired urbanity. They contribute to place based design objectives and, create a visual connection to nature and its associated restorative qualities. But more needs to be done.

The real powerbrokers in the development of urban form are the developers, landowners and funding agencies. The influence of architects, designers and planners exists in the substance and conviction of their arguments. Good design can only prevail in parallel with a set of values held by a group or individual (McGlynn, Murrain, 1994). Given the multi disciplinary nature of urban design it is therefore of paramount importance that the values and associated rationale are shared and effectively communicated. In actuality, the notional paradigm shift necessary to redefining the nature of the urban landscape is self-evident. The challenge facing the built environment design stakeholders is to substitute rhetorical ecological values with definitive measures.

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