

Exploring Sustainable Architectures¹

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Abstract

Buildings are responsible for 50% of CO₂ emissions and as a result their design has become the focus of intense technical scrutiny. We now possess immense practical knowledge about the construction of 'sustainable buildings' as reflected in the rapidly multiplying books available of the technical 'how to do it' or 'best practice' variety. However, knowing how to build more technically efficiently, or more ecologically, and being able to assemble the social resources to actually do so require different forms of knowledge and practice. Moreover, there is wide contestation over the optimal pathways to greener building design and great diversity in practices of sustainable architecture. This paper looks to open up a new space for debate that recognises the plurality of discourses and practices of green architecture through which we may identify new pathways to sustainability.

Environmental architecture, in other words, is environmental architectures, a plurality of approaches with some emphasizing performance over appearance, and some appearance over performance.

(Hagan 2001, 4)

Choose any book about sustainable architecture and you will confront a number of contrasting images of what sustainable architecture might be—that is, what it might look like, where it might be located, what technologies it might incorporate, what materials it might be constructed from and so on. The diversity of responses to these choices is quite bewildering and rather than diminishing over time, appears to be accelerating. Three decades of debate about sustainable architecture and a search for some form of consensus around universal best environmental practice appears to have failed. This situation often provokes deep depression amongst environmentalists. For example, James Wines despairs that 'A major proportion of the architectural profession has remained oblivious to the magnitude of its irresponsible assaults on the land and resources', while contemporary architectural practice tends to 'confuse, rather than reinforce,

a progressive image of earth friendly architecture' (Wines 2000, 11). Of course, some architects disagree. Harry Gordon argues that sustainable design has now gone mainstream;

After decades of intense effort by designers, architects, individuals, and organisations, a tectonic shift in design thinking has occurred: sustainability is now becoming mainstream. Some might even say it has become a societal design norm (Gordon 2000, 34).

So the debate rages on between what are often called light green and deep green architects. We want to take a different stance. Rather than argue that we need revolution or reformation, more or less technology, more pious behaviour, to embrace or abandon the city, or to develop clearer definitions or standardisation, we want to explore, even celebrate the diversity of contemporary debate about sustainable architecture.

For in the process of exploring this debate it quickly becomes clear that the challenge of sustainability is more a matter of local interpretation than of the setting of objective or universal goals. This is not to suggest, as more radical relativists might, that environmental problems are merely imaginary. As Steven Yearley has argued, to 'show that a social problem has been socially constructed is not to undermine or debunk it', and even more importantly, 'The detachment required from social science should not become an excuse for cynical inaction' (Yearly 1991, 186). In response to a world of 'Khunian' paradigm shifts about the ways in which to conceptualise social and ecological issues, we think it is more productive to explore the cultural framing of what Bruno Latour calls 'science in practice'. However, to favour a more contextual, reflective science is not to abandon all hope of tackling environmental challenges. Like Richard Rorty (1998), we can argue that the process of 'achieving' social, political and environmental change is not advanced by developing universal claims about progress (as do many modernists) or by endlessly deconstructing our language and actions (as do many postmodernists). Following John Dewey, Rorty calls on us to abandon 'the attempt to find a (*single*) theoretical frame of reference within which to evaluate proposals for the human future' (Rorty 1998, 20), at the same time as avoiding the temptation to

‘prefer knowledge to hope’ (ibid., 36). The effect of this stance, Rorty argues, is to change our understanding of the meaning of progress. That is, ‘Instead of seeing progress as a matter of getting closer to something specifiable in advance, we see it as a matter of solving more problems’ (1998, 28).

So while we might support, and even encourage critical engagement with abstract theory about environmentalism, we are not interested in simply playing language games. Like Macnaghten and Urry we are keen to go beyond the ‘rather dull debate between ‘realists’ and ‘constructivists’ and instead identify ‘specific social practices, especially of people’s dwellings, which produce, reproduce and transform different natures and different values’ (Macnaghten & Urry 1998, 2). Exploration of diversity in design and development encourages a deeper engagement with sustainable architecture, one that does not shy away from broader sociological or philosophical questions or merely indulge in the narrowly instrumental debates that characterise so much of the green architecture literature (Guy & Shove 2000). By exploring sustainable architectures in the plural, as competing interpretations of our environmental futures, we can begin to ask new questions and perhaps introduce some fresh thinking about sustainable design (Guy 2002). As Fischer and Hajer have argued, this interpretive stance;

(...) opens up the questions: what alternative ways of seeing can we envisage; how do we analyse environmental problems?; and how do we want to live both in and with nature? (Fischer & Hajer 1999, vii).

This emphasis on living both ‘with’ and ‘in’ nature emphasises that ‘neither the natural nor the social can be given paramount status, but that instead a process of *co-construction* needs to be recognised and explored’ (Irwin 2001, 16). So rather than meet nature as an external pre-given entity to be saved or exploited, we need to understand and relate to nature in a number of ways. As Kay Milton reflects, these ‘diverse ‘myths’ of nature give rise to different understandings of the risks involved in our use of the environment and the character and the degree of responsibilities towards it’ (Milton 1996, 32). She goes on;

(...) environmentalism is unambiguously part of culture (...) it is part of the way in which people understand the world and their place within it. It belongs to

the sphere that includes people’s feelings, thoughts, interpretations, knowledge, ideology, values, and so on. It is (...) a particular way of understanding the world. As such (...) environmentalism has implications for, and is expressed in, the things people do (Milton 1996, 33).

Note that Milton emphasises that what people ‘do’ is intimately connected to what they think, feel, or claim to know. As an anthropologist she wants to sensitise us to the ways in which ‘local knowledge’ frames our relationship to nature. As another anthropologist, Clifford Geertz comments;

(...) the shapes of knowledge are always ineluctably local, indivisible from their instruments and their encasements. One may veil this fact with ecumenical rhetoric or blur it with strenuous theory, but one cannot really make it go away (Geertz 1993, 4).

Geertz argued that to comprehend the complex relationship between knowledge, action and local culture necessitates replacing *thin descriptions* that focus on the narrowly empirical, with *thick descriptions*, explorations and explanations of local contexts which look across a ‘multiplicity of complex conceptual stories, many of them superimposed upon or knotted into one another, which are at once strange, irregular, inexplicit (...)’ (Geertz 1973, 10). It is the ‘strange, irregular, inexplicit’ ways in which people both interpret nature and make and inhabit buildings, and how these competing approaches reflect the cultures of people who are involved in this process of architectural making that should be our focus.

Acknowledging the plasticity of culture and nature means that we need to recognise and analyse green buildings as a series of contingent hybrids, an understanding of which is inseparable from the encounter with the people and places that shaped its design and development. Seen this way, each individual design strategy explored in the book *Sustainable Architectures: Cultures and Natures in Europe and North America* (2005)² has developed a particular relationship to sustainability, place, technology and the future and has emerged as a response to a situationally specific analysis of the environmental challenge. Richard Rorty usefully describes this analytical approach as ‘antirepresentationalist’, one that ‘does not view knowledge as a matter of getting reality right, but rather as a matter of acquiring habits of action for coping with reality’ (Rorty 1991, 1).

The paradoxes of green architecture

For many writers the challenge is rather more straight-forward than this theorising would suggest. Stimulated by growing resource scarcity, the debate about climate change, and the threats of sick-building syndrome, more and more architects have taken-up the mantle of promoting ecological concerns. They have, in the main, focused on reducing the energy intensity of buildings through the use of insulating materials, low energy lighting and the promotion of natural ventilation, and attempted to eschew non-renewable and potentially hazardous, toxic materials. Many architects have, then, accepted Deyan Sudjic's challenge to 'address the issue of green urbanism' (Sudjic 1996, 7). Energy economy is a major priority among these practitioners. As Susan Maxman argues, 'it's not like the 1970s, when every house had to be earth-bermed, solar powered, etc etc... we realise now that it has to make economic sense as well' (quoted in Bilger 1993, 11). This popular view of sustainable architecture renders it roughly synonymous with energy efficiency. If this is the definition of sustainable architecture that is ultimately accepted by a majority it would seem that the theorizing offered by the authors of the book *Sustainable Architectures* (2005) might be productively replaced by radically simplified checklists that itemize 'best practices,' or concrete things-to-do. Richard Rorty, has, after all, admonished us to '(...) put a moratorium on theory (...) and get on with (...) solving the problems of men' (Rorty 1998, 91).

There are, of course, many authors who have approached the challenge of sustainability with just such a 'can-do' attitude. In the UK for example, Brian Edwards and Paul Hyatt have written a 'rough guide to sustainability', published by the Royal Institution of British Architects (RIBA), which confidently links the definition of sustainability to 'a number of important world congresses' through which we have learnt what it means to be sustainable (Edwards & Hyatt 2001, 1). Architectural sustainability is linked to the much quoted Brundtland definition through an emphasis on limits to the 'carrying capacity' of the planet, and they point to the UK's Building Services Research and Information Association (BSRIA) definition of sustainable construction as; 'the creation and management of healthy buildings based upon resource efficient and ecological principles' (Edwards & Hyatt

2001, 7). Drawing upon these sources, Edwards and Hyatt argue that a 'large part of designing sustainably is to do with energy conservation', while also recognising that it is also about 'creating spaces that are healthy, economically viable and sensitive to local needs'. However, the rest of their guide has little to say about the wider social and political issues examined in *Sustainable Architectures* (2005), and focuses almost exclusively on resource efficiency. Sustainable housing for instance is defined as 'housing that creates sustainable communities in a resource-efficient manner' (Edwards & Hyatt 2001, 97). Modelling techniques such as the Building Research Environmental Assessment Method (BREEAM) are emphasised and a self-assessment sustainability toolkit for architecture students is provided, which allots scores for interventions in the areas of energy, materials, resources, access and health. Interestingly, when checklist users total their calculations, all the energy criteria receive a 300% multiplier whereas issues such as 'contact with nature' attract a 100% multiplier, while criteria to assess the social equity of resource and/or environmental risk distribution are absent.

Our intention here is not to critique this methodology or to argue that the range of environmental innovations Edwards and Hyatt highlight are not valid, socially, commercially or technically, in their own terms. Along with John Hannigan, the aim of our analysis is not to 'discredit environmental claims but rather to understand how they are created, legitimated, and contested' (Hannigan 1995, 3). Following Latour, we wish to open the lid of these 'black boxes' and better understand the values that lie inside their making (Latour 1987). The critical point is the apparent self-confidence with which some architects view the sustainability challenge. It is precisely such certainty that allows Paul Hyatt, who was recently President of the RIBA, to declare that;

Sustainability is at the top of the agenda, firmly and irreversibly, coinciding with a growing public awareness and creating a new mood which should be put to maximum effect. The duty lies collectively with all architects to posit alternative visions of the future that will enable mankind to live in harmony with its host environment (Edwards & Hyatt 2001, 18).

Edwards and Hyatt claim that these alternative visions of how we might best live in harmony with nature can be adequately expressed through

an energy-rating model. Harry Gordon concurs from a US perspective when he argues that the 'LEED standards, issued in 2000, are creating a common understanding of what it means to build green' (Gordon 2000, 34). Employing similar logic, Paul Hawkin, Amory Lovins and Hunter Lovins, in the very influential book, *Natural Capitalism*, argue that 'Americans will automatically embrace radical resource efficiency once they understand that they can reduce consumption without diminishing the quantity or quality of services that people want' (Hawkin et. al. 1999, 176).

There are, however, others who are less sanguine about our ability to scientifically express our relationship to nature. The American planner, Scott Campbell, for example, would strenuously object to the imbalance implicit in Edwards and Hyatt's multipliers and the lack of equal assessment given to issues related to social equity (Campbell 1996). Deyan Sudjic, arguing from another perspective holds that;

Designing buildings that are truly green is still a far from exact science, and we judge by appearances. We assume that buildings are green if they look hand-made and are built of 'natural materials' (Sudjic 1996, 7).

For Sudjic, the black box of ecological design is filled with paradoxes rather than certainty. Thus, we now have a situation in which a whole variety of environmental innovations are advanced in the debate about 'sustainable building'. Deyan Sudjic usefully summarises this confusion;

Despite the dogmatism of many of the specialists about what is and what is not an ecologically sensible approach to architecture there can be no certainty. Like all new religions, there is endless scope for doctrinal dissent. There are many different approaches, from those who believe in low-tech mud walls, to the enthusiasts for hi-tech mechanisms (Sudjic 1995, 25).

Employing a close textual analysis technique (Multidimensional Scalogram Analysis) Cook and Golton analysed a range of books and articles about sustainable building and found considerable inconsistencies and anomalies between the definitions of environmentalism between each of these groups;

For example, the London Ecology Centre advocate that 'green' building should use super insulating argon filled windows to increase energy efficiency thereby reducing resource consumption, an acknowledged ecological goal. However these windows require high technology in research and development, and use highly processed or high entropy materials. The windows are not manufactured locally from traditional materials and will require transportation from the point of manufacture to the site (Cook & Golton 1994, 680).

However, they found the 'edges' between each competing perspective 'blurred' when considering design priorities, technical choices and architectural principles. This is not surprising. The debate about green building has been characterised by a whole set of awkward analytical questions about the nature of 'true' green design. For instance, Mark Branch points out that 'manufacturers who are looking to minimise their impact on ecology are also concerned about their employees, so they avoid toxins' (Branch 1993, 10). The problem is that 'the kinds of products that tend to be best for people with multiple chemical sensitivities or severe allergies are inert ones such as metals, glass, and concrete—non renewable (though recyclable) materials' (ibid.). Similarly, Brenda and Robert Vale ask whether it is 'better to produce a new building that has minimal effect on the environment through only using those resources available to the building from its site', or 'is it better to convert an existing building that will continue to need to use resources and fossil fuels over its lifetime?' (Vale & Vale 1996, 142). The Vales call for more 'hard research to underpin any proposals put forward for a more sustainable urban environment' (ibid.), but as Deyan Sudjic points out, it is not that simple;

A timber structure, for example, doesn't need the energy that goes into smelting aluminium. On the other hand, aluminium structure can easily be recycled, while timber cannot. How do you account for the energy costs of transporting building components to the site? And how about the energy that will be consumed by all the occupants in getting to a building? (Sudjic 1995, 25).

It would appear that attempting to scientifically define 'green buildings' by privileging specific forms of 'technically proven' environmental innovation is misguided. In fact Cook and Golton, quoting Gaile (1956), suggest definitively that the whole concept of 'green' building is 'ill-conceived', with

sustainable architecture embodying an ‘essentially contestable concept’ (Cook & Golton 1994, 678). Similarly, John Farmer has argued that ‘there is no conclusive definition of what ‘green’ means’ beyond a range of innovative design approaches which ‘either explicitly or subliminally reference themselves in relation to nature’ (Farmer 1996, 179).

Exploring environmental knowledge

A fundamental feature of the new environmental politics is that there is no one true, or trusted, form of expertise, no single path to the truth.
(Jamison 2001, 27)

Turning away now from the search for universal definitions of sustainability or standardised forms of best practice design we must find a different way forward. In order to proceed we must draw upon a wider set of disciplinary sources and begin to connect architectural debate to theory and practice in the humanities and social sciences. As Jamison argues, we ‘must wander outside the confines of any one discipline and any one mode of interpretation into the wider worlds of culture and history’ (Jamison 2001, 36). Jamison is interested in what he terms the ‘making of green knowledge’, that is the ways that ‘different producers of knowledge, (...) take their point of departure, their problem formulation, from different aspects of reality’ (ibid., 32). By focusing on the process of environmental knowledge making we can avoid setting up bi-polar oppositions between different paradigms of thought, the light versus dark green architects or the sociologists versus scientists. Instead we can recognise researchers and practitioners as reflecting differing, often competing, modes of knowledge. That is, inhabiting different ‘epistemic communities’ (Haas 1990). Jamison puts it this way;

There have emerged ‘a number of competing academic, or analytical, responses to the new environmental challenges (...) based on different ideals of scientific knowledge, different ‘epistemic’ criteria, as well as different varieties of scientific practice’ (Jamison 2001, 27–28).

Jamison draws on Jürgen Habermas to suggest that the natural, social and human sciences are all underpinned by differing ‘knowledge constituting

interests’ (Habermas 1971, quoted Jamison 2001, 34), whether it be, respectively, one of control over nature, the management of nature, or a better understanding of nature. To complicate matters more, environmental advocates of every persuasion are adept at creatively drawing upon these different disciplinary traditions to support their respective visions. As Ulrich Beck remarks, ‘The observable consequence is that critics (i.e. environmentalism) frequently argue more scientifically than the natural scientists they dispute against’ (Beck 1995, 60). Everyone it seems is involved in making what Michel Foucault called ‘truth claims’, each seeking to frame environmental responses in relation to a particular problem definition. Seen this way, appeals to facts and figures, or aesthetics, or experience, or spirituality all represent alternative forms of knowledge which should be treated symmetrically. Moreover, given that, ‘Except for the name of ‘ecology’ itself, virtually nothing unites the bioregionalists, Gaians, eco-feminists, eco-Marxists, biocentricists, eco-anarchists, deep ecologists and social ecologists’ (Ross 1994, 5). Any attempt to neatly categorise or ‘essentialise’ forms of environmentalism along a scale of light and dark, or deep and shallow, as some authors have attempted, seems fatally flawed. As David Schlosberg suggests, ‘There is no such thing as environmentalism. Any attempt to define the term in a succinct manner necessarily excludes an array of other valid definitions’ (Schlosberg 1999, 3).

Departing from an understanding founded on a pre-defined conception of the environmental problem in which appropriate ends (sustainability) and means (technology) are simply assumed, the book *Sustainable Architectures* (2005) explores the ways in which individuals, groups and institutions embody widely differing perceptions of what environmental innovation is about. As Marteen Hajer argues;

(...) the present hegemony of the idea of sustainable development in environmental discourse should not be seen as the product of a linear, progressive, and value-free process of convincing actors of the importance of the Green case. It is much more a struggle between various unconventional political coalitions, each made up of such actors as scientists, politicians, activists, or organisations representing such actors, but also having links with specific television channels, journals and newspapers, or even celebrities (Hajer 1995, 12–13).

We have only to think of the tensions and inter-linkages between the various contributors to the urban environmental debate to spot the opportunity for contestation. In the UK we could think of Prince Charles, Energy Saving Trust, Friends of the Earth, British Council of Offices, Royal Institution of British Architects, Alternative Technology Centre, Building Research Establishment etc. In the US we can similarly think of Earth First!, the Rocky Mountain Institute, and former Vice President Al Gore as sitting uncomfortably in the same category. Each of these actors and institutions possess 'a particular way of thinking and talking about environmental politics' reflecting the 'rather different social and cognitive commitments' which become reflected in the 'story-lines' each actor develops about what a green building is or is not (Hajer 1995, 13). So, from this analytical standpoint we cease to view green buildings as merely differently configured technical structures. As Hajer points out, to analyse environmental questions in terms of 'quasi-technical decision-making on well defined physical issues misses the essentially social questions that are implicated in these debates' (Hajer 1995, 18). Analysing discourses of environmentalism, 'as a specific ensemble of ideas, concepts, and categorisations that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities' (ibid., 44), allows us to view green buildings as social representations of alternative ecological values, or material embodiments of the competing discourses that make up the green buildings debate. Tracing the resonances and dissonances between each of these discourses supports John Dryzek's argument that '(...) language matters, that the way we construct, interpret, discuss, and analyze environmental problems has all kinds of consequences' (Dryzek 1997, 9). It is these consequences that each of the individual chapters of *Sustainable Architectures* (2005) explores in detail and through which we begin to recognise the diversity of stories being told about sustainable architecture today. As Beauregard suggests;

To contemplate public policy for our cities or to consider acting collectively requires not merely an analysis of the conditions available for success but also a reflective understanding of the language with which we represent those conditions (Beauregard 1995, 77).

Future technologies, environmental futures

Rejecting any notion of green buildings as merely differently configured technical structures which can be more or less better designed related to an external definition of accepted environmental standards, we need to view sustainable buildings as social expressions of competing ecological values. Re-reading green buildings in this way reveals the widely differing motivations and commitments of actors, the diverse range of techniques or technical innovations employed, the variety of contexts and settings in which development occurs and the social and political processes involved in the definition and redefinition of the nature of the environmental problem itself. In this way, we begin to recognise how different discourses of green design are mobilized by different, often competing actors, and are then framed by dynamic social and technical contexts of building development and infrastructure provision. Adopting this way of seeing building design highlights both the competing pathways of innovation, and the hybrid nature of the green building.

We must treat technology, like the notion of sustainability itself, as a fundamentally contested concept and to explore the importance of social context for the shaping of environmental innovation. Our use of the term 'technology' here is an expansive one. We mean by it not only the artefacts associated with sustainable architecture—solar collectors, wind generators, bio-mass boilers and the like—but the knowledge required to construct and use these artefacts, as well as the cultural practices that engage them (MacKenzie & Wajcman 1998, xx). This stance echoes that of Andrew Feenberg who has similarly explored these approaches and emphasised the need to avoid the essentialist fallacy of splitting technology and meaning, and to focus instead on the 'struggle between different types of actors differently engaged with technology and meaning' (Feenberg 1999, xiii). For Feenberg, the contexts of technology include such diverse factors as 'relation to vocations, to responsibility, initiative, and authority, to ethics and aesthetics, in sum, to the realm of meaning' (ibid.). Wrapped up in each technological artefact, or in the case of our architectural interests, each building, are an assembly of ideologies, calculations, dreams, political compromises and so on. Seen this way;

(...) technologies are not merely efficient devices or efficiency orientated practices, but include their contexts as these are embodied in design and social insertion (Feenberg 1999, xiii).

Feenberg usefully gives us an example of a modern, western house which on the one hand has increasingly become an 'elaborate concatenation of devices', the centre of 'electrical, communications, heating, plumbing, and of course, mechanised building technologies' (Feenberg 1999, xi). For builders, houses are often little more than this. On the other hand, houses are much more than 'an efficient device for achieving goals' and as home dwellers we are all skilled at creating a 'domesticated' environment, which has 'little or nothing to do with efficiency' (ibid.). Feenberg acknowledges that a distinction between the technical, the electric circuit as a technology, and the social, the experience of warmth and light, has a certain validity, for instance in the development of professional technical disciplines. However, to treat each as an essentially distinct category would be to deny that, 'from an experiential standpoint these two dimensions—device and meaning, technical and life-world practice—are inextricably intertwined (Feenberg 1999, xii).

In sum, while acknowledging how a technical, performative approach to understanding environmental design has brought undoubted benefits in terms of highlighting the issues of energy efficiency in buildings, we must fundamentally revise the focus and scope of the debate about sustainable architecture and to reconnect issues of technological change with the social and cultural contexts within which change occurs. Drawing upon more critical, interpretive analytical approaches to technological change, this would involve social scientists both in defining the nature of the environmental challenge and in exploring a range of context specific responses. In this way we might follow the spirit of engagement and while responding to Rorty's admonition to quit 'theorizing' and get on with the work of solving the 'problems of men', emphasises the urgent need for a process of critical reflection through which we may begin to explore how we might individually and collectively respond to environmental issues. For while both checklists and philosophical speculation can be helpful and even necessary, to achieve certain objectives, they rarely provoke the wider

'public talk' (Barber 1984) necessary to engage community participation in sustainable design. That is, the 'work' of choosing how we want to live—with and in nature—in order to sustain life into the future. This is, we argue, a response to the political debate Rorty is calling for, and a contribution to the generation of what he terms 'social hope' about our collective futures.

Notes

- ¹ This paper forms part of an introduction co-written with Steven Moore for the book *Sustainable Architectures: Cultures and Natures in Europe and North America*, edited by Simon Guy and Steven Moore, New York: Spon Press (2005).
- ² See Simon & Moore (2005).

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