

## SPANNING THE BOUNDARIES: SPATIAL PLANNING AS RETICULISM



Prof. Deborah Peel

**Based on my Inaugural Professorial Lecture, *Facilitating Resilient Places: Planning as a Creative Discipline*, given on 4 October 2012 at the University of Ulster's Jordanstown campus, this paper takes a Geddesian lens to reflect on contemporary metaphorical concepts which advocate interdisciplinarity. Drawing together ideas relating to dynamic b/ordering, resilience, innovation zones and boundary spanning, a case is made for spatial planners to assume the mantle of the new reticulist.**

A shared challenge for all individuals and communities is how to deal with the management of change. Growing older, getting slower, becoming less well, changing uses of familiar buildings, changing configurations of town centres, and changing land and resource use, for example, variously invite dealing with – and managing – change. Change, however, is complex, discursive and is contested. Change may not be smooth, linear or anticipated. There are areas of state and market intervention, however, where change management is, arguably, of central concern to ambitions for sustainable development. Moreover, as Higgins and Morgan, writing in the context of spatial planning education, argued:

*As change becomes more rapid and discontinuous, it is crucial that there are people in the profession that are able to turn problems*

*into opportunities, while acknowledging the contradictions. Often, this involves seeing things from a new perspective and breaking away from traditional ways of thinking that may have lost their meaning (2000: 117).*

According to Vanegas, “The built environment, defined by the facilities and civil infrastructure systems that people use, is the fundamental foundation upon which a society exists, develops, and survives” (2003: 5363). It follows, therefore, that planning practitioners, leaders and those shaping opinion and understanding in the built environment play critical roles in the management of change. This then raises practical questions across a range of professional, political, community or private realms. This paper addresses some of the issues which fall to those involved in spatial planning research, education and practice to consider.

Positive planning is urgent, complex, multifaceted and ambitious. As the World Urban Campaign, comprising a global coalition of public, private and civil society partners coordinated by UN-Habitat, states in *Better City – Better Life*<sup>1</sup>:

*A planned city is fundamental to achieving a resilient, green, inclusive, productive, safe and healthy urban development. This requires planning processes and political frameworks that harness the city's assets and potential. Sustainable planning entails participatory decision-making processes and particular attention to development that balances social, environmental and economic needs.*

This paper takes this normative agenda as its starting point. It focuses then on how to facilitate and plan sustainable change through a synthesis of four contemporary concepts:

- Dynamic b/ordering;
- Resilience;
- Innovation zones; and
- Boundary spanning.

The argument is made that the underlying emphasis upon integration and interdisciplinarity, which informs each of these concepts, makes a powerful case for spatial planning to assume an important reticulist role in shaping resilient places. In locating these ideas in light of Patrick Geddes' thinking in relation to town and regional planning, this paper begins by suggesting that the art of reticulism remains integral to spatial planning, drawing on central Geddesian principles (1904) which advocate coordination and connectivity in regional planning. The remainder of the argument draws on metaphorical concepts which require integrative working.

First, the paper examines the notion of dynamic b/ordering which serves to highlight some of the complexities associated with working in borderlands – whether these are figurative, disciplinary, or physical. Second, the paper traces the evolution of the concept of resilience from its ecological and functional roots to more democratic expressions of action. This section serves to make the case for adopting a social-ecological resilience approach which emphasises integrating social, governance systems with natural ecosystemic thinking in order to afford learning and offer transformative approaches to the management of change. The advocacy of working across different leadership realms is then considered drawing on Hambleton and Howard's innovation zones (2012) in relation to place-based leadership. The final conceptual metaphor explored is boundary spanning which is advanced as a way of thinking about how to foster more effective collaborative action across different spheres of influence, and to facilitate transformative thinking through reticulism.

### A Geddesian Legacy

Patrick Geddes was a polymath and planning visionary – someone whom Tewdwr-Jones (2011) would call a "planning wizard". Geddes' *Cities in*

*Evolution*, published in 1915, encapsulated the idea that cities are in constant flow and change. Active in urban restoration, Geddes also promoted the notion of conservative surgery in the management of the historic form (Grieve et al., 2004), illustrating a need for appropriate judgement and intervention in the management of change. Adopting what might be regarded as an interdisciplinary – or indeed transdisciplinary – perspective, Geddes was alert to spatial inter-connections in outlining his ideas for regional planning; indeed, he coined the term *con-urbation*. Drawing on his local and practical observations growing up in the Tay Valley in Scotland, for example, Geddes' valley section explicitly traced the interconnections from source to sea, and inter-linked the natural occupations of miner, forester, shepherd, peasant, gardener and fisher. He asserted a temporal dimension, arguing that activities variously evolve or degenerate (Geddes, 1904) to shape the present and then inform the future.

Geddes' ideas were no doubt informed by contemporary educational thinking in Scotland which advocated a philosophy of generalism (Peel, 2005). He argued:

*[a] general and educational point of view must be brought to bear on every specialism. The teacher's outlook should include all viewpoints. .... Hence we must cease to think merely in terms of separated departments and faculties and must relate these in the living mind; in the social mind as well – indeed, this above all" (Macdonald, 2009).*

One of his most cited phrases, 'by leaves we live', powerfully asserts the Earth's reliance on plants and finds a contemporary articulation in sustainability principles. Further, Geddes translated his civic-mindedness into practical initiatives. His Outlook Tower, for example, which comprised a museum, observatory and civic laboratory, explicitly located the city of Edinburgh in a wider global context (Peel, 2007). This facility served various purposes since it acted as a vehicle for sharing knowledge in different contexts and integrated spatial scales. It

may be considered a prescient demonstration of a contemporary idea to think globally and act locally within environmental parameters.

Geddes actively sought to address practical issues of the day. He advocated a more systematic study of cities, explicitly emphasising connectivity and coordination across space, place and science. In promoting a more 'orderly and comprehensive' approach to city planning in the early 20th century, Geddes pointed to contemporary examples of the theoretical and practical synergies to be derived through synthesising science and art (1904: 104). Deploying evocative imagery, Geddes (1904) differentiated between the 'Sociological Observatory', involving observing and recording, and active experimentation associated with the 'Sociological Laboratory'. He drew attention to established

linkages between chemistry and agriculture, biology and medicine, and connections made between vital statistics and hygienic administration, and commercial statistics and politics. Geddes (1904) contended, however, that art and science were relatively less well integrated in incipient ideas of city planning at that time.

For Geddes, separated thinking could simply not address the complexity of the socio-economic, governance and environmental challenges to be confronted. His triad – folk, work, place – put community at the centre of a dynamic set of inter-relations (see Figure 1). Indeed, folk, work, place may be seen as a prescient precursor to contemporary articulations of sustainability – bringing together social dimensions (folk), with economy (work) and the environment (place) (Peel, 2007).

**Figure 1: Geddes' Triad of Place-Work-Folk**



Source: Welter, 2002: 34

In asserting community as fundamental to a city's material and immaterial structures and functions over time, Geddes affirmed: "Town-planning is not mere place-planning, nor even work-planning. If it is to be successful it must be folk-planning" (1947: 22). Again, contemporary interests in forms of community planning are indicative of a Geddesian principle spanning the test of time. Indeed, Geddes claimed that "a city is more than a place in space, it is a drama in time" (1904: 108), capturing perhaps the essential dynamism of built and natural environments, both spatially and temporally. Yet, notwithstanding Geddes' exhortations for integrative thinking and civic-mindedness in nascent regional planning, borders and boundaries persist in different areas of social organisation and practice, potentially impeding constructive action.

### **Towards Dynamic B/ordering**

From a spatial planning perspective, grouping and classifying people, development and activities by their location in space forms part of a broader approach to coordinating management of built and natural environments and forward planning to support sustainable growth. In this context, political boundaries may be understood as socio-spatial markers of difference, through delineating specific legal, territorial, and sovereign entities (Novak, 2011). Their reciprocal relations are complex. In practice, state power and influence co-exist with day-to-day functional and personal realities of human activity and the dynamics of natural ecosystems. People, goods and services variously travel and flow across – or are differentially restricted by – administrative and jurisdictional boundaries. Natural ecosystems, such as those associated with coastal zones, however, do not respect such socially constructed borders (McGlashan and Duck, 2010). As the European Union, for example, has progressively enlarged its membership, new cross-border relations have emerged prompting differentiated socio-economic activities and relations. In teasing out an inherent paradox of national borders, Novak suggests that "[t]hrough their territoriality, political boundaries inscribe a state-centred order in space, both

materially and discursively", whilst simultaneously affording a "dynamic b/ordering process" (2011: 743). Borders – like bodies of disciplinary thought or professional groupings – can variously release creative potential or serve to restrict and contain knowledge. The notion of dynamic b/ordering then offers both a way of thinking about ordering professional knowledge (Peel, 2012), whilst emphasising that working across distinct professional boundaries opens up dynamic and potentially synergistic intellectual spaces.

Dominant rationales for promoting interdisciplinary practices in higher education have been explored by Chettiparamb (2007), for example, who highlights a number of tensions. On the one hand, arguments for interdisciplinarity to address complex problems are predicated on perceived limitations and gaps in disciplinary perspectives. On the other, those who defend in-depth disciplinary rigour challenge such arguments, pointing, for example, to the quasi-stable status of disciplines themselves which likely evolve and reposition themselves in relation to an ever-changing context. In this way, disciplines may be regarded as demonstrating (or not) qualities of resilience at times of change or disturbance.

### **Dynamism through Resilience**

In the context of understanding the management of complex and unpredictable change, the maturing concept of resilience is becoming increasingly central to considering how natural environments, communities or organisations, for example, variously respond to change, and deal with external shocks. As such, academic and professional interest in resilience criss-crosses disciplinary boundaries. A greater sensitivity to the vulnerabilities of built and natural environments has turned on an asserted need for resilient construction, for example, in anticipating and responding to human-induced and natural emergencies, with emergency management identified as requiring a holistic approach (Bosher et al., 2007). In similar vein, Pickett et al.'s discussion of resilient cities suggests that resilience as a metaphor is attractive because it emphasises ideas

of “staying power, or flexibility, or adaptability” (2004: 370). Indeed, they argue (ibid.) that: “Thinking of cities in these terms is compelling and provocative because it [resilience] emphasises dynamics”. This explains, in part, why the term has become fashionable.

The potentially persuasive nature of resilience in the face of change has witnessed this metaphor travel in both physical and social contexts. Indeed, Pendall et al. suggest that resilience analysis has become “trendy” as “scholars and practitioners from across the disciplines flock to the word or idea of resilience as a quality of people, structures or places” (2010: 72). In the light of this relatively pervasive interest, and as managers of change, it is apposite then to reflect on the role of spatial planners in creating resilient places and spaces. Moreover, since resilience thinking invites crossing professional and physical continents, it is pertinent to locate such a discussion in relation to the role spatial planners can potentially play in actively traversing disciplinary borders and working in intellectual borderlands.

In tracing the lineage of resilience, Folke (2006) identifies specific broad phases. The term originated in a branch of ecology. In the 1960s and early 1970s, the idea of resilience was used in relation to a system’s capacity to absorb shocks and persist in a state of equilibrium. ‘Engineering resilience’, Folke explains, “focuses on maintaining the ... constancy of the system, ...resisting disturbance and change, to conserve what you have” (2006: 256). In other words, an engineering perspective of resilience is predicated on the use of command-and-control, positivist strategies to maintain a stable equilibrium. This interpretation of resilience is encapsulated in the idea of ‘bounce-back’.

During the 1980s, resilience became associated with adaptive management thinking and interest in integrated, large-scale ecosystems. The idea of resilience was reworked to signify a “capacity for renewal, re-organisation and development” in the context of sustainability discourses (Folke, 2006:

253). Rather than assert a return to a steady state, business-as-usual perspective, resilience came to signify capacity for renewal and regeneration – ideas that are germane to planning. Inherent in this way of interpreting resilience is the idea of ‘bounce-forward’ – in effect, seeking to manage change in conditions of uncertainty.

Developments in resilience thinking since the 1990s have expanded the concept’s normative potential. Resilience is increasingly used not only as a way to think about natural, or indeed urban, ecosystems – but, echoing North’s (1990) ideas, also the associated societal and institutional frameworks and organisational arrangements which seek to govern and manage physical environments. Recognising the inherent complexity in, and interdependency of, ecological and social systems is the starting point for social-ecological resilience thinking which actively involves cross-fertilising interest groups and disciplinary traditions (Folke, 2006). In effect, a social-ecological resilience approach advocates a reconciliation between natural ecosystems and human organisational systems. It follows that:

*In suggesting that resilience involves more than an ability to recover from disturbance, but actively necessitates adaptive capacity building and devising innovative responses and new trajectories, a social-ecological resilience perspective offers significant learning and transformative potential (Lloyd et al., 2013: 927).*

This interpretation of resilience may be illustrated in a coastal zone context, for example, where social and ecological systems are inherently interlinked, involving a complex of historical and cultural traditions, and social, organisational and governance arrangements (e.g. communities, interest groups, decision-takers) and local marine-coastal ecosystems (see Figure 2). Such a dynamic environment, bringing together intrinsic values, with static and shifting dimensions, exemplifies some of the challenges involved in appreciating resilience as ‘drama in time’.

**Figure 2: Community Regeneration in Newburgh, Scotland**



*Copyright: Deborah Peel*

From a social-ecological resilience perspective, decision-taking and deliberate intervention involve social and natural scientists – though not exclusively – working together in transdisciplinary ways. Illustrative of the versatility of the term, resilience has been used both to analyse impacts of climatic disruption and to evaluate local government responses to climate change (Shaw and Theobald, 2011), for example, inviting consideration of how potentially transformative governance regimes might operate in practice. Given their statutory remit in relation both to place and process, it is contended here that a social-ecological resilience framework puts spatial planning firmly into the frame of action. Operating within an institutional governance field, spatial planners then have a legitimate role to promote what Healey (1998) advocated (at a specific point in the intellectual development of planning) as collaborative planning since they have a duty to consult and engage with a range of stakeholders and local communities, straddling natural and social sciences. Deliberating and prioritising options are social activities predicated on facilitating debate and determining action (Forester, 1999). A social-ecological resilience frame not only calls for working across potentially very different disciplinary and scientific contexts, it also offers opportunities to deliberate alternative approaches to operationalising resilience. In other words, spatial planning might

variously advocate conservation (engineering resilience), regeneration (adaptive resilience), or transformation (social-ecological resilience). Moreover, planning as social public policy itself needs to be resilient and demonstrate an ability to mitigate, adapt and transform in response to external change and socio-economic or institutional shocks.

Social learning is advocated as a strategy for dealing with progressive and unanticipated change. Lebel et al. (2010: 334), for example, argue that social learning is required so that “new knowledge, shared understanding, trust and, ultimately, collective action” can be secured. Specifically, they suggest that an environmental, process-informed perspective to the management of change requires new factual knowledge (cognitive learning), changes in norms, values and beliefs (normative learning), and, critically, increased trust and openness to alternative worldviews (relational learning). This is an ambitious learning agenda. It invites attempts at creating novel collaborations across sectors, communities, and institutions, and more specifically, perhaps, between faculties in higher education to create new learning spaces and curricula to support the acquisition of appropriate interdisciplinary learning outcomes, and new interdisciplinary research projects that involve a range of communities of interest. Implicit here, is the need for active and engaged reticulists to initiate and facilitate plural networks and work with agents within novel interstices.

### **Borderlands as Innovation Zones**

A social-ecological resilience perspective on sustainability invites working inside and outwith defined disciplinary, professional, and jurisdictional borders. Such thinking resonates with Geddesian ideas of education without walls and chimes with concerns in higher education to promote interdisciplinarity. A useful contemporary conception of the inherent ‘connectedness’ of knowledge and responsibility to adopt an inclusive approach has been articulated by Boyer whose scholarship of integration invites giving “meaning to isolated facts, putting them in perspective.[...] making connections across the disciplines, placing the specialties in

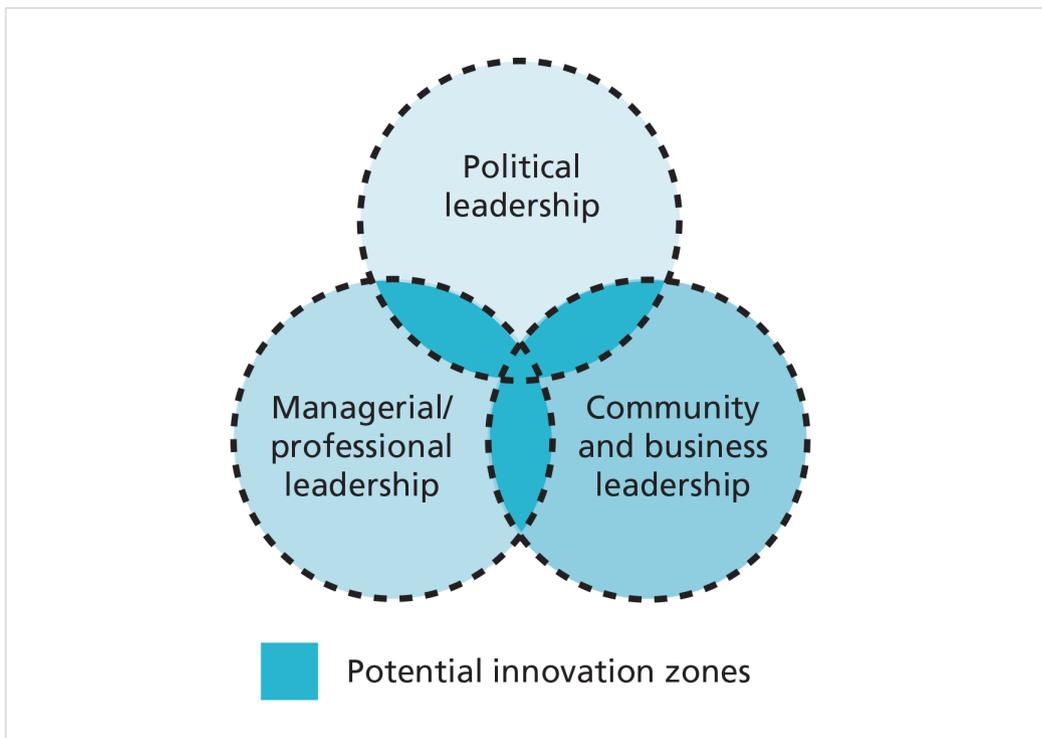
larger context, illuminating data in a revealing way, often educating non-specialists, too” (1990: 18). A question then arises as to who might act as intellectual connectors.

Parallel questions exist which suggest that contemporary challenges, such as climate change, invite new forms and combinations of leadership to foster public service innovation. Hambleton and Howard (2012), for example, argue that fresh thinking may be stimulated by actively collaborating and working across sectors, communities, and responsibilities. In nurturing creative dialogue, they advocate co-designing solutions. Such cooperative thinking and potential co-delivery necessitate supporting synergies through alternative spaces for combining thinking, responsibilities and disciplines, thereby re-envisioning leadership

potential. Specifically, Hambleton and Howard (2012) differentiate between those leaders who exercise political leadership through holding elected positions; civic-minded individuals who give time and energy to local leadership activities in community contexts; and those whose leadership is derived through appointment to managerial or professional positions. Representing these different realms of leadership in a simple model of overlapping and porous circles, Hambleton and Howard (2012) advocate conceptualising the areas of overlap as potential innovation zones where different perspectives can be actively worked through and critically questioned in searching out new solutions (see Figure 3).

The metaphor of an “innovation zone” has the potential to turn what might be delineated as a static border or sterilising boundary into a dynamic

**Figure 3: Realms of Civic Leadership**



Source: Hambleton and Howard, 2012

learning space. Professional spatial planners, working in what might be described as a statutory or advocacy capacity (Davidoff, 1965), again have room for manoeuvre within such hybrid realms. Such an argument demands, however, that planners actively assume a professional leadership role and facilitate development of stronger conditions to support a new civic infrastructure. The latter would involve, following Boyer (1990), designing appropriate learning spaces and deliberative processes to assist 'meaning making' across the sciences, locating and integrating specialist and distinct knowledge in joined up ways, and working with scientific, political and lay interests. As such, building on Geddes' advocacy for civic engagement and ideas of civic formation (Peel and Lloyd, 2008), a robust civic infrastructure for management of change and community resilience becomes a corollary of new forms of civic leadership.

### Boundary Spanning and Reticulism

As part of new governance arrangements, it is clear that there is an increasing tendency for partnership or collaborative working across sectors, services, and the built environment (Sullivan and Skelcher, 2002). Actively encouraging alternative modes of intervention through new delivery mechanisms, however, does not necessarily of itself bring shared cultures, actions or understanding. In exploring the concept of boundary spanners to serve as "cognitive filters", interpreting and enabling others to digest information and prevailing discourses, Williams (2010: 7) outlines certain qualities and expertise required of those who serve to span borders. Though acknowledged as a contested concept in practice, Williams (2010) usefully distinguishes two types of boundary spanner. First, there are those whose specific responsibility is to work fresh spaces between existing functions, that is, whose role is defined and determined by new cross-sectoral and governance contexts. Second, there are boundary spanners who perform this additional role as part of a wider portfolio of activities. In both, communication is acknowledged as a critical skill. It is in this context that planners can potentially serve as active and deliberate reticulists (Lloyd and Illsley, 1999: 184) by affording an "inter-organisational communications

link between policy systems" and by bringing facilitative skills to interpret, explain, and set out options for management of change.

### Resilient Reticulists: A Role for Spatial Planners?

In reflecting on his own trajectory, Lewis Mumford once observed:

*Patrick Geddes' philosophy helped save me from becoming a monocular specialist ... [I]t gave me the confidence to become a generalist – one who sought to bring together in a more intelligible pattern the knowledge that the specialist had, by over-strenuous concentration, sealed into separate compartments (cited in Novak, 1995: 25).*

The implications are that fresh patterns of understanding are derived by crossing borders, perhaps working in and facilitating interaction in dynamic intellectual borderlands. Geddes, botanist, sociologist, educator – "a thinker and a doer" – and a champion of town and regional planning sought the potential for transformative change through stimulating cross-fertilisation between different sciences and advancing a civic infrastructure. His was not an ivory tower but one that generated creative potential to gain a different perspective, a fresh outlook, by integrating ideas from across disciplines. Such thinking is consistent with Boyer's (1990: 21, emphasis in the original) contention:

*Today, interdisciplinary and integrative studies, long on the edges of academic life, are moving toward the center, responding both to new intellectual questions and to pressing human problems. As the boundaries of human knowledge are being dramatically reshaped, the academy surely must give increased attention to the **scholarship of integration.***

Contemporary exhortations to adopt a social-ecological resilience perspective unequivocally encourage spanning societal / institutional and natural / ecological ecosystems in the management of plural change. Indeed, a transformative

interpretation of resilience posits enabling institutional settings to evolve, allowing environments to adapt where necessary, and affording diverse communities potential for change. Geddes' arguments for connecting work, place, folk through integration of different scientific knowledge and active civic engagement continue to provide an important intellectual basis for spatial planners to act as facilitators for managing change. Indeed, in extending Geddes' assertion of 'by leaves we live', one might use the metaphor of the reticulate leaf, the veins of which form and nourish intricate networks. In assuming the mantle for facilitating cognitive, normative and relational learning across borders,

spatial planners are well placed to serve as assertive and deliberate reticulists, mobilising plural learning through networks, dialogue and innovation, and playing an active role in fostering social-ecological resilience.

**Deborah Peel is Professor of Planning Research and Scholarship in the School of the Built Environment, University of Ulster. As a social scientist, her research focuses on aspects of governance, the reform and modernisation of statutory land-use planning, public engagement and community planning. She is Editor of the *Journal for Education in the Built Environment*.**

## Endnotes

---

<sup>1</sup> See <http://www.worldurbancampaign.org/categories.asp?catid=694>

## References

---

Bosher, L., Carrillo, P., Dainty, A., Glass, J. and Price, A. (2007). 'Realising a resilient and sustainable built environment: towards a strategic agenda for the United Kingdom' in *Disasters*, 31 (3), pp. 236-255.

Boyer, E.L. (1990). *Scholarship Reconsidered: Priorities of the Professoriate*, Princeton: Carnegie Foundation.

Chettiparamb, A. (2007). *Interdisciplinarity: A literature review*. Southampton: The Interdisciplinary Teaching and Learning Group, Subject Centre for Languages, Linguistics and Area Studies, School of Humanities, University of Southampton. URL: [http://www.heacademy.ac.uk/assets/documents/sustainability/interdisciplinarity\\_literature\\_review.pdf](http://www.heacademy.ac.uk/assets/documents/sustainability/interdisciplinarity_literature_review.pdf) (Last accessed 16 December, 2012).

Davidoff, P. (1965). 'Advocacy and Pluralism in Planning' in *Journal of the American Institute of Planners*, 31(4), pp. 331-338.

Folke, C. (2006). 'Resilience: The emergence of a perspective for social-ecological systems analyses' in *Global Environmental Change*. 16(3), pp. 253-267.

Forester, J. (1999). *The Deliberative Practitioner: Encouraging Participatory Planning Processes*. London: The MIT Press.

Geddes, P. (1947). 'Report on the Towns in the Madras Presidency, 1915, Madura' in Tyrwhitt, J., *Patrick Geddes in India*. London: Lund Humphries. Collection of Geddes Reports.

Geddes, P. (1904). *Civics as applied sociology*. Project Gutenberg. E-Book. URL: <http://www.gutenberg.org/files/13205/13205-h/13205-h.htm> (Last accessed 16 December, 2012).

Grieve, N., Peel, D. and Lloyd, M.G. (2004). 'Geddes, democratic intellectualism and modern town and regional planning' in Jarron, M. (Ed.) *The Artist and the Thinker - John Duncan and Patrick Geddes in Dundee*, Dundee: University of Dundee Museum Services. pp. 95-103.

Hambleton, R. and Howard, J. (2012). *Public Sector Innovation and Local Leadership in the UK and The Netherlands*. York: Joseph Rowntree Foundation.

Healey, P. (1998). 'Collaborative Planning in a Stakeholder Society' in *The Town Planning Review*, 69(1), pp. 1-21.

Higgins, M. and Morgan, J. (2000). 'The role of creativity in planning: The 'creative practitioner'' in *Planning Practice and Research*, 15(1-2), pp. 117-127.

Lebel, L., Grothmann, T. and Siebenhüner, B. (2010). 'The role of social learning in adaptiveness: Insights from water management' in *International Environmental Agreements: Politics, Law and Economics*, 10(4), pp.333-353.

Lloyd, M.G., Peel, D. and Duck, R. W. (2013). 'Towards a Social-Ecological Resilience Framework for Coastal Planning' in *Land Use Policy*, 30(1), pp. 925-933.

Lloyd, M.G. and Illsley, B.M. (1999). 'An idea for its time? Community planning and reticulism in Scotland' in *Regional Studies*, 33(2), pp. 181-184.

McGlashan, D. J. and Duck, R. W. (2010). 'The PDMU approach to the integration of coastal management' in *Journal of Coastal Research*, 26(3), pp. 465-469.

Macdonald, M. (2009). *Sir Patrick Geddes and the Scottish Generalist Tradition. 6th Sir Patrick Geddes Commemorative Lecture*. Royal Society of Edinburgh 22-26 George Street Edinburgh, May 20.

North, D.C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

Novak, F.G. (1995). From 'Findings and Keepings' *Lewis Mumford & Patrick Geddes: The Correspondence*, London: Routledge.

Novak, P. (2011). 'The flexible territoriality of borders' in *Geopolitics*, 16(4), pp. 741-767.

Peel, D. (2012). 'Editorial: Pushing the Envelope of Built Environment Education?' in *Journal for Education in the Built Environment*, 7(1), pp. 1-7.

Peel, D. (2007). 'Work, Place, Folk in Scotland: The Contemporary Resonance of Patrick Geddes' in *Kanto Toshi Gakkai Nempou*, 9(3), pp. 60-77.

Peel, D. (2005). 'The 'Ah-ness' of learning' in *Journal of Generalism and Civics*, Issue VI pp. 32-35. URL: <http://www.hodgers.com/mike/patrickgeddes/introduction.html> (Last accessed 16 December, 2012).

Peel, D. and Lloyd, M.G. (2007). 'Civic Formation and a New Vocabulary for National Planning' in *International Planning Studies*, 12(4), pp. 391-411.

Pendall, R., Foster, K., & Cowell, M. (2010). 'Resilience and regions: Building understanding of a metaphor' in *Cambridge Journal of Regions, Economy and Society*, 3, pp.71-84.

Pickett, S.T.A., Cadenasso, M.L. and Grove J.M. (2004). 'Resilient cities: meaning, models, and metaphor for integrating the ecological, socio-economic, and planning realms' in *Landscape and Urban Planning*, 69 (4), pp. 369–384.

Shaw, K. and Theobald, K. (2011). 'Resilient local government and climate change interventions in the UK' in *Local Environment: The International Journal of Justice and Sustainability*, 16(1), pp. 1-15.

Sullivan, H. and Skelcher, C. (2002). *Working across boundaries: Collaboration in public services*. London: Palgrave Macmillan.

Tewdwr-Jones, M. (2011). *Urban Reflections: Narrative of Place, Planning and Change*. Bristol: The Policy Press.

Vanegas, J.A. (2003). 'Road map and principles for built environment sustainability' in *Environmental Science Technology*, 37(23), pp. 5363-5372.

Welter, V.M. (2002). *Biopolis: Patrick Geddes and the City of Life*. Cambridge, Mass.: MIT Press

Williams, P. (2010). *Special Agents: The Nature and Role of Boundary Spanners*. Paper to the ESRC Research Seminar Series – 'Collaborative Futures: New Insights from Intra and Inter-Sectoral Collaborations', University of Birmingham, February.