Environmental Politics
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/fenp20

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Published online: 20 Oct 2010.

To cite this article: Molly Scott-Cato & Jean Hillier (2010) How could we study climate-related social innovation? Applying Deleuzean philosophy to Transition Towns, Environmental Politics, 19:6, 869-887, DOI: 10.1080/09644016.2010.518677

To link to this article: http://dx.doi.org/10.1080/09644016.2010.518677

Environmental Politics
Vol. 19, No. 6, November 2010, 869–887

How could we study climate-related social innovation? Applying Deleuzean philosophy to Transition Towns

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The contribution that the philosophy of Gilles Deleuze might offer to researchers studying social innovation in response to climate change is explored. Since the publication of the Stern report, it has been recognised that climate change requires major changes in the way our economy is organised, but it also requires significant social and behavioural change. Can this be usefully viewed through the prism of theories of social innovation? How might such social innovation affect the life chances of the socially excluded, and to what extent does it, therefore, offer a space for radical social change? Transition Towns – a community movement in response to climate change – is used as a test-case of these ideas.

Keywords: Transition Towns; climate change; Deleuze; green politics

Introduction

As academics, we are living in interesting, but challenging, times. In a rapidly changing world, where many of us are committed as activists as well as analysts and commentators, we can feel that our techniques of categorisation and taxonomy may be challenged by that change: the ground is shifting beneath our feet even as we try to measure and describe it. This is where the concept of 'social innovation' may prove useful, with its celebration of the emancipatory potential of change. Barry and Quilley (2008) have provided a very useful summary of research that might be conducted into the Transition Towns. If their paper addresses the 'what?' of research in this area, the focus of ours is rather the 'how?' How can we, as academics who may also be deeply involved in the intellectual struggles over our post-carbon future, and in supporting our own communities in the adaptation to climate change, most appropriately frame our analysis of what is a rapidly changing and deeply personal research agenda?

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ISSN 0964-4016 print/ISSN 1743-8934 online

DOI: 10.1080/09644016.2010.518677
http://www.informaworld.com

We have written this article for our own guidance and that of other engaged academics who try to balance the requirements of a credible and nuanced intellectual stance, a determination to inform and guide the public debate and a close involvement in their own community's response to the environmental crisis, as particularly instantiated in the crises of climate change and oil depletion.[1] We are in a situation of rapid and unpredictable social and economic change. It is hard to grasp even the framework within which our analysis takes place. Questions about the role and power of the researcher are especially pressing, since we have a responsibility not to undermine the grassroots initiatives we are studying (Seyfang and Smith 2007). This is exacerbated by the fact that, whether they are conscious of it or not, every researcher is affected by the crisis, and many are deeply involved in the process of change that they are also studying. In such a situation, the self-conscious timelessness of the philosophy of Gilles Deleuze[2] has much to offer. Instead of giving us a robust frame to grasp amidst shifting sands, he rather liberates us from our need for one.

The next section presents some contending philosophical frameworks within which to consider social innovation, focusing particularly on the philosophy of Deleuze. We then provide a brief account of the Transition Towns in a supportive but critical vein. The penultimate section synthesises the previous two sections, by sketching how a Deleuzean-inspired approach might be useful in framing the activity that is taking place as part of the Transition process. Finally, we conclude with some tentative thoughts about the potential for social innovation offered by the concept of a 'transition' to a low-energy economy.

The study of social innovation

The phrase 'social innovation' emerged primarily from the Francophone intellectual community in both Europe and Quebec from the 1970s onwards (Chambon *et al.* 1982). It is used to refer to academic and other intellectual activity that engages actively with contemporary social problems to achieve socially beneficial outcomes. Social innovators are considered to prioritise the social good and underpin civil society, while also upholding the interests of the vulnerable within a capitalist economy. Several proponents of social innovation favour the work of Schumpeter (e.g. 1943), whose commitment to socialism was tempered by his optimistic view of the possibility for liberal democracies to effect gradual, endogenous change to the general welfare of all (Moulaert *et al.* 2005).

But how can we identify such social innovation? What techniques and methods are well suited to identify, explore and describe the dynamic forces we find in society as a response to social injustice and inequality and the 'socially creative strategies' that we may wish to report and even encourage? What we are seeking is a way of approaching the field of research that is rigorous about challenging preconceptions, especially those embedded in our discourse and intellectual framing. Novy (undated) lauds an approach that is able 'to deal with knowing and non-knowing in a reflective way' and starts from a place of

humility. Beginning with the research subject and being guided by her/his understandings fosters our own spirit of openness to change.

Arthur *et al*. (2008) consider that the most valuable method of study is located within the tradition of new social movement (NSM) studies building on the work of Melucci (1996) and McAdam *et al*. (2001). They ask questions about the extent to which actors are free to change, and to make change and raise the issue of the distinction between synchronic and diachronic change, i.e. whether social innovation should be seen as a contained potential within a hostile overarching socio-economic environment, or a political Trojan horse that can be universally transgressive, when social and political conditions allow wider mobilisation. Whether or not the Transition movement should be studied from this perspective is one of the questions raised by Barry and Quilley (2008), who claim that Transition fits Blumer's (1969) definition of social movements as 'collective enterprises on the part of social groups driven by dissatisfaction with an existing ''form of life'' and seeking to establish a new one'. NSMs, therefore, challenge 'urban meaning' (Castells 1983, pp. 319–320), threatening or breaking down the material and social hierarchies that structure urban life. Although it is widely acknowledged that most NSMs tend to be fragmented, parochial and of limited duration and effectiveness, if successful they have the potential to expose power relationships and operations and to overturn stereotypes and traditions and reframe ideas and practice into more participatory and negotiable models (Hillier 2002, p. 230). The concept of social movements would thus appear to have limited relevance in terms of the Transition Towns, which have been criticised for their political naivety and absence of an analysis of power (Cato 2008, North 2009, p. 587), a critique also made of micropolitics in general (May 1994).

Gilles Deleuze's empiricist philosophy, however, offers a view of associationalism, which could be useful. In his work with Félix Guattari (1987), Deleuze seeks immanent, micrological conditions of interactive transformation capable of resisting appropriation by major power structures. Deleuze and Guattari 'look for immanent modes of association in pragmatic assemblages that are capable of inventing alternative forms of social interaction' (Krause and Rölli 2008, p. 245).[3]

Moving away from political structures and towards a more personal concept of change, Novy (undated, p. 1) highlights the pedagogical approach of Paolo Freire (1971) whose worldview he sums up in the phrase 'The world is emerging: whenever people act creatively, they change the world and therewith themselves'. The usefulness of this methodology to a rapidly changing research field is clear: it is an emancipatory approach that responds creatively to change as the central hallmark of life. It thus has much in common with the philosophy of Gilles Deleuze, as demonstrated below, and is similarly supportive of studies that seek to understand, without fossilising, fields of rapid and creative social innovation. For Freire, research is a dialogue or a conversation and what emerges from this research may not easily fit within the format of a peer-reviewed paper – or even be capable of being written at all.

For Freire, knowledge is not primarily literary, hence his extended analogy of reading and writing the world (Novy, undated).

Like Freire, Deleuze intended his philosophy to be emancipatory, focusing on the importance of liberation from hierarchy and structure, for which he used the image of the mental asylum (Bogue 1989). Growing out of this concern, Deleuze develops two of his key images: arborescence – a tree-like structured hierarchy, epitomised by institutions of the State – and the rhizome , a horizontal underground plant stem with lateral shoots and roots, such as ginger, used as a metaphor by Deleuze to indicate an underground or shadow network of, or decentred set of linkages between, multiple branching roots and shoots, i.e. 'a proliferating, somewhat chaotic, and diversified system of growths' (Grosz 1994, p. 199).

A rhizome is thus the antithesis of arborescence, which has dominated Western thought from Porphyrian trees, to Linnaean taxonomies, to Chomskyan sentence diagrams. Arborescences are hierarchical, stratified totalities that impose limited and regulated connections between their components. Rhizomes, in contrast, are non-hierarchical, horizontal multiplicities that cannot be subsumed within a unified structure, whose components form random, unregulated networks in which any element may be connected with any other elements (Bogue 1989, p. 107).

Deleuze and Guattari (1987, p. 7) suggest that a rhizome 'ceaselessly establishes connections between semiotic chains, organisations of power, and circumstances related to the arts, sciences and social struggles'. Rhizomes are also characterised by 'principles of asignifying rupture': 'a rhizome may be broken, shattered at a given spot, but it will start up again on one of its old lines, or on new lines' (Deleuze and Guattari 1987, p. 9). Protest groups, for instance, may be broken up and their members arrested and removed from action, but their ideas will remain to be continued and developed by others. Old-growth forests may be felled, but plants and trees will regenerate in the cleared space. Laws may be passed to regulate behaviour, but loopholes will be found.

The fabric of the rhizome is the conjunction – 'and' – connecting elements, issues and ideas. 'AND is neither one thing nor the other, it's always in-between, between two things; it's the borderline, there's always a border, a line of flight or flow ... [I]t's along this line of flight that things come to pass, becomings evolve, revolutions take shape' (Deleuze 1995, p. 45). The rhizome thus maps a process of networked, relational and transversal thought (Colman 2005). It can challenge and transform structures of reified, fixed and static thought into a 'milieu of perpetual transformation' (Colman 2005, p. 233) composed of causal and/or aleatory (chance) connections and links. To think rhizomically is to reveal the multiple ways possible to assemble thoughts and actions in immanent, always-incomplete processes of change and innovation, or becoming.

Another key guiding theme of Deleuze's work is the importance of a 'philosophy of difference', again an emancipatory approach that liberates us from a world of path-dependent historical progression to one where desire makes change possible. As Deleuze said, his aim was to 'find the conditions

under which something new is produced' (Deleuze and Parnet 1987, p. vii) within itself: creative transformation. Take the temperature of a volume or system of water, for instance. If the water is heated sufficiently beyond a certain threshold, it will change its dynamics to move in patterns of convection, eventually transforming its structure to become steam. If cooled sufficiently, it becomes ice. The water example illustrates two commonly understood types of difference: difference in kind (water is different to ice is different to steam) and difference of degree (water is not ice is not steam), together with the idea of difference as a process: differentiation.

Some systems, pushed to their limits, will collapse and die. Others will be more resilient, learn from the event and, perhaps, creatively adapt to changed conditions. As such for Deleuze, 'it is difference that founds being' (1956). In the political sphere, this is a perspective that may liberate us from the hegemonic claim that there is no alternative to the neoclassical market system (see Daniels 2009). It opens up not only the possibility but the necessity for conflict to stimulate differentiation and to create new social forms: it is the politics of the possible.

Together with difference, becoming – or emergence – is the key theme that can help us understand the ways in which social change arises. Emergence describes the continual production of difference in events (Stagoll 2005). It invokes the dynamism of change. Deleuze's philosophy appears to fit neatly with interpretations of the world as complex systems, especially in ecology (Robinson and Tansey 2006), in urban planning (Batty 1969, 2005, Batty and Longley 1994) and in economic spheres (Noell 2007).

Deleuze also distinguishes between the macro- and micropolitics (Deleuze and Guattari 1987). Macropolitics is concerned with those things or states of affairs, such as governmental structure, class and gender, associated with arborescent structures (which Deleuze terms 'molarities'). Micropolitics focuses on politics that 'transpire in areas where they are rarely perceived' (Conley 2005, p. 172), such as people talking in coffee shops or pubs. Micropolitics is a creative process, often (though not necessarily) working in small groups (Deleuze and Guattari 1987, p. 215); 'stirring and escaping, eluding the guard, trickling out from under the door' (Houle 2005, p. 92).

As Houle (2005) explains, changes introduced into macropolitical systems tend to create changes in quantity rather than quality (e.g. legislative protection of *more* polar bears rather than enabling them to travel across the now-melted Arctic ice-cap for food to maintain their quality of life). Micropolitics, in contrast, tends to generate qualitative change – something that incites a heterogeneity: an 'existential mutation' (Houle 2005, p. 93). Existential mutations do not involve predetermined solutions, but enable experimentation, allowing members of a group to 'internally generate and direct their own projects': 'a reinvention of the ways in which we live' (Guattari 2000, p. 141 and 34, cited in Houle 2005, p. 93).

The micropolitical system has an inherent capacity, which is intrinsically related to time. What happens in the present and the future depends somewhat

on the past, but is not completely path dependent. There is scope for experimentation, for innovation and chance. For Deleuze, micropolitics entails an expanded capacity to respond. As Houle (2005, pp. 96–97, citing John Berger) concludes, 'micropolitics is the most viable candidate at the present time, for countering the seductive fascisms of "one size fits all" and its evil sidekick, the "single story told as though it's the only one"'. This is a view that is not anarchic, since some rules are necessary to achieve order, but which challenges the stifling and hierarchical nature of existing power structures. In a political sphere, it represents an emancipatory commitment to diversity and equality.

Deleuze's philosophy is facilitative of socially creative strategies to respond to social challenges: the creation of space for potential difference. His methodological framing suggests the inclusion of multiple perspectives and sites of power. In a later section, we will take forward these aspects of Deleuze's philosophy, and apply them to a practical contemporary example of social innovation – the Transition Towns movement that has grown up as a citizen response to climate change. First, we offer a brief introduction and personal reflection on the early phase of the Transition movement.

Transition Towns: a place for change?

Climate change is arguably the strongest pressure for social innovation on a global basis, as well as a major motivation for academic activity. In the UK, following up on the Stern (2007) Review's investigation into the Economics of Climate Change, the Economic and Social Research Council (ESRC) has made the social and economic aspects of climate change a priority for its research funding (Lipsett 2007). The social issues that are likely to emerge as fuel prices rise and economic growth is constrained include the following: the need to maintain social justice and protect the vulnerable; making use of opportunities for creating fulfilling livelihoods within local economies; the role of culture and the 'creative classes' as the new drivers for growth.[4] Seyfang and Smith (2007, pp. 584–585) have argued that 'Moves towards sustainability are generating a variety of social innovation' and that this 'new agenda considers the grassroots a neglected *site of innovation* for sustainability'. While a pressing concern for economists working with the reality of a low-carbon, or post-carbon, world is the need to maintain social justice, climate change might also offer us the possibility of asking deeper questions about 'social exclusion', first and foremost some attempt to determine what sort of society and economy we might wish to be included in.

The Transition Towns movement began in Totnes in September 2006. Responding to the recognition of the need for a radically different way of life following the depletion of oil supplies and the requirement to reduce the carbon dioxide emissions that are causing climate change, communities are called upon to raise awareness, equip themselves with skills and knowledge and move together towards a low-energy lifestyle. As in February 2009, there were 134 communities across the world that had been officially registered as 'Transition Towns'. Designation requires signing up to a list of criteria designed by the

Transition Network,[5] although beyond this there is little monitoring of the towns' activities, and it is hard to gain a clear idea of how much activity there is in each. The movement is informal although there is a formal 'Transition Network', also based in Totnes, which is funded by grants and an online presence via Rob Hopkins's blog (Transition Culture) and an e-newsletter.

The Transition movement is focused on resources – its *raison d'être* being the need to reduce fossil fuel use because of the threats posed by climate change and peak oil – and thus its ideology suggests an alternative way of organising the economy. This new ordering will not be capitalist, as is made explicit in presentations by Hopkins (2007) where he quotes Korten's (2000) view that we must be 'both hospice and midwife' for the existing economic system. A similar note arose from the Open Space event held in Totnes in March 2007, where a whole section of discussion was entitled 'Ideas for developing the non-capitalist economy'. The concept of resilience is key to the ideology of the movement. Hopkins (2007) takes a definition from the ecologist Brian Walker *et al*. (2004): 'Resilience is the capacity of a system to absorb disturbance and reorganise while undergoing change, as to still retain essentially the same function, structure, identity and feedback.' As well as reducing the use of fossil fuels, Transition Towns aim to build stronger, more coherent and more 'resilient' communities, meaning communities that can absorb shocks and respond to them with positive change, rather than fragmenting.[6]

While all movements rely on the energy of a large number of people, many become associated with a single, iconic figure. In the case of the Transition Towns movement this figure is Rob Hopkins, who began developing this response to climate change while teaching permaculture in Kinsale in Ireland.[7] After moving to Totnes in Devon, he launched the Transition Town Totnes process with others in the town. He has been the prime motivator and developer of the ideas and especially the Transition 'brand'; the individual communities have followed their own paths and unique, local processes. The message of Transition is not a new one. What is new is the style and presentation – often more like a revivalist meeting than a political campaign. In contrast to the 'lean economy' (Fleming 2004) or the 'freedom to be frugal' (Cato 2004), Transition offers 'a positive vision'.

Our own knowledge of the Transition process is based on the close involvement of one of the authors since the beginning of the movement and on a variety of published sources including presentations by leading Transitioners, and relevant internet sites, together with visits to a number of Transition Towns and Cities and conversations with their activists.

Deleuze takes the slow train to Totnes? Encountering Transition Towns

In this section, we link the two strands running through this article by applying the aspects of Deleuze's philosophy that are relevant to social innovation to the specific example of the Transition movement, as it has spread rhizomically from Totnes.

Multiplicity

A central commitment of the Transition process is the involvement of multiple perspectives. Totnes have included 'Transition Tales' as part of their process – an opportunity to include young people in school by asking them to write news stories from 2030. One of Hopkins's (2007) 12 steps of transition is 'Honouring the Elders', and the gathering of social histories of people with experience of more frugal ways of living – especially during the Second World War – have been collected and disseminated. Older people are also invited to share their knowledge of crafts, such as spinning, darning and basket-making as part of 'the great reskilling'.

Stroud includes a part of its process called 'Learning from the South' – both as a reminder that the sustainable future does not mean cutting ourselves off from the poorer world and our responsibility for others, and in recognition of the ability many in the poorer world demonstrate to live happier and more sustainable lives than our own. During the process of 'awareness raising', many Transition communities showed the film *The Power of Community: How Cuba Survived Peak Oil*, which describes the rapid need to relocalise Cuba's economy and become self-reliant in food following the sudden end of imports of cheap Soviet oil in the 1990s. The idea is not to set Cuba up as the ideal society, but rather to learn what we can from its rapid response to limited oil supplies – especially in terms of the growth of urban food growing. This has inspired the planting of nut trees within the town of Totnes. The example of Thailand, which has developed an alternative model for measuring progress made by its country and her people based on 'self-reliance, moderation, resilience, inner dynamic and knowledge' (UNDP 2007), is similarly being circulated.

Transition Bristol has demonstrated the value of a multi-scalar approach. They decided at an early stage that a city of 380,000 people was too large to become a sustainable economy, and the process was taken forward by a network of individual villages within the city. The individual Transition processes themselves tend to break up into smaller working groups focusing on particular aspects of 'energy descent', such as energy, health, education, food, textiles, livelihoods and 'hearts and minds' (psychological preparation for the approaching crisis). The need to avoid hierarchy is explicit in the design of the process: Hopkins includes in his presentation the 'twelve steps to transition'[8] of which step 1 is 'Set up a steering group and design its demise from the outset'. In an earlier version of the same steps, step 10 was 'Let it go where it wants to go'.

The Transition Network is beginning to demonstrate some arborescent, hierarchical tendencies, largely as an attempt to protect the Transition brand. Towns and other communities are no longer able to self-enrol but are added to a 'mulling' category until they have crossed a number of hurdles, apparently to demonstrate their commitment (http://transitiontowns.org/TransitionNetwork/Criteria). The Network is also offering 'training', which sticks fairly close to the process as followed in Totnes, although towns that do not conform have not so far suffered any penalty. It will be interesting to see how these

authoritarian tendencies express themselves and to what extent they are resisted by the socially creative forces in the various communities following the Transition route.

Rhizomes

The image of subterranean potential conjured by Deleuze's rhizome metaphor seems appropriate to the Transition movement, whose leader is, by trade, a permaculturalist. It also seems to describe the way the movement has spread from its origin in Totnes, first into the South-West of the UK, then further field, to include communities overseas. Hopkins (2008) calls this a 'viral spread', but he would, doubtless, have preferred the image of the rhizome if it had been made available to him. Seyfang and Smith (2007, p. 597) use the equally appropriate phrase 'budding off' to describe how grassroots social innovations (in this case time banks) spread from one community to another.

The relations between the Transition communities are key to the success of the process and are supported by the Transition Network. Transitioners share ideas through open-access wiki websites and blogs, although this is running up against arborescent barriers of moderation and control, as the process develops and spreads. The Network also organises conferences to share learning between the Transition communities. At the first, held near Stroud in March 2007, Dr. Pamela Gray from Transition Penwith 'health and medicine' group gave a presentation on 'industrialised healthcare and oil addiction' including 'options for an efficacious post peak health-care system', while Nick Weir from Stroud presented an example of community-supported agriculture. The rhizomatic nature of the spread of the transition concept has also taken it outside the movement, with the Soil Association providing information on Transition farming, following Rob Hopkins's presentation to the annual conference in 2007.

The ontology of difference

The concept of 'transition' is clearly central to the Transition Towns process, which is also frequently described as a 'journey', as in Stroud's slogan: 'Journey to a low carbon high life'. Transition suggests the possibility of change – and even of transformation – but without a definite end-point in mind.[9] It is thus an empowering concept that opens up more possibilities rather than closing them down, as in the phrases 'lean economy' (as in David Fleming's work, http://www.theleaneconomyconnection.net/) or 'low-carbon economy'. Many Transition communities use techniques of visioning and story-telling to imagine alternative futures (see the example from Lewes, http://transitiontowns.org/Lewes/Setcompass). Transition Fishguard in Pembrokeshire is seeking to use Welsh culture to advantage and building links with similarly motivated groups in Brittany.

The ideology of Transition suggests the need to fit into the local environment or bioregion (Cato 2009) as well as the importance of making

use of local resources, including those of culture and history. Thus, the Transition City of Nottingham in the UK's East Midlands is discussing the revival of the tradition of raising pigs in factory premises, feeding them food scraps, while Brixton is working with ethnic communities to learn their approach to the self-provisioning concept. As North (2009, p. 587) comments in his discussion of eco-localisation, 'A variety of local economies mirrors nature's diversity, facilitating experimentation and the development of more effective practices and models'.

Transition Towns, therefore, do not opt out of the mainstream, but rather attempt to change it, by thinking transversally and embracing more eco-sustainable ways of living to reorient the objectives of material and immaterial production. As such, Félix Guattari's work on ecosophy and the *Three Ecologies* (1995, 2000) may offer a useful potential trajectory for Transition Towns, with Guattari's emphasis on connections between environmental, social and mental ecologies. Guattari believed that practical application of ecosophy (ecological philosophy) can bring forth new, productive subjectivities, through turning technologies towards humans, for instance.

Complex systems and emergence

The creation of transformed subjectivities, as above, involves 'a local slowing down' (Berressem 2009, p. 64) of the fast movements of normalised life; a slowing down that allows for a 'healthy destabilisation of habits that leads to the evolution/production of "the new"' (Berressem 2009, p. 73). Berressem points out the links between Deleuze and Guattari's ecological or ecosophical thought and the development of complexity theories,[10] with particular reference to issues of adaptability and transformation. As Protevi (1999, p. 3) describes, 'societies have thresholds at which they adopt or change behavioural traits'. What might be the threshold, then, at which local communities decide to become Transition Towns?

Akin to Deleuzean 'minor politics', a communal and particular interrogation of socio-economic relations, a favourite method of the Transition movement is the *Open Space* (http://www.openspaceworld.org/), where the agenda for a day-long meeting is set by those who arrive in the morning and there is a harsh Darwinism in the choice of discussions, because people move from one person's discussion group to another if they feel their energy flagging. Totnes, Lewes and Stroud have used *Open Space* to establish the direction their process should take. A strong focus on visioning, as in the Energy Descent Action Plan each community is expected to produce – as well as the concept of Transition itself – has resonances with Deleuze's notion of the importance of 'becoming'; a readiness for change. Lewes is also using the *Open Café* (http://www.theworldcafe.com/) method to achieve a similar outcome online, while Stroud has created alternative spaces for open debate in its *Transition Drinks* and *Coffee House* discussions. *Seedy Sunday* is another example of a process of opening to unexpected consequences rather than setting a direction: local

growers are invited to come together to exchange seeds they saved from the previous year. Another example is the proposal for the Stroud health group to offer a dozen medicinal herb plants to Transitioners with advice on how to use them to cure their common ailments.

Some of Deleuze's ideas appear to resonate with the concept of panarchy, which has attracted attention since the 1980s, in particular. Panarchy – sometimes referred to as poststructuralist anarchism (see May 1994) – developed in governance literature to describe both a specific form of governance that would encompass all others (de Puydt 1860) and global governance (Sewell and Salter 1995). More recently, it has become popular in relation to examination of ecosystems and their capacity for resilience/creative adaptation (see, for example, Gunderson and Holling 2002, Seixas and Berkes 2003), and is now being applied to issues of ecological, economic and social sustainability (e.g. Holling 2001, Mintzberg and Westley 2001, Holling and Gunderson 2002, Scheffer *et al.* 2002). Panarchy may be defined as the dynamics of adaptive cycles that are nested within one another across space and time (Holling 2001, Berkes *et al.* 2003, p. 18).

Deleuze has been described as a poststructuralist anarchist (May 1994) for his rejection of State thought as an abstraction that transcends its different concrete manifestations, yet at the same time operates through them (Newman 2009). However, while there are some resonances between panarchic thinking and Deleuzean thought, we find the application of panarchy to empirical practice rather limited. For instance, there is much computer modelling (e.g. Brock *et al.*, 2002; Appendices in Gunderson and Holling, 2002), which is almost inevitably reductionist. Moreover, use of terms such as 'optimal management', 'hierarchies', 'cycles', 'stable states' and 'optimal utility', suggests arborescent views of social networks rather than rhizomes. Notwithstanding this criticism, however, we do recognise a potential for academics working in different disciplinary areas to benefit from connecting across apparent divides.

Macropolitics and micropolitics

Transition results from government and market failure to tackle effectively the twin problems of peak oil and climate change: in spite of some rhetorical commitment to grassroots solutions from politicians (Seyfang and Smith 2007), the perceived reality for social change innovators concerned about climate change is that they are on their own and that the market as currently constituted is not supportive of their attempts to achieve sustainability (Greenwood 2007). This assumption itself opens up the possibility for liberated political action since it suggests a need to solve political problems by micropolitical community processes, rather than via normal, macropolitical channels. While negative views are not encouraged within the transition culture, confidence in 'politicians' and traditional politics is fairly limited with a consequent sense that the priority is to 'do it yourself' (for a similar view of new 'Gaian democracies' see Madron and Jopling 2003). This DIY approach

includes the reactivation of local economic production and distribution: many Transition Towns have focused on food as a first step here, as in the example of Transition Town Llandeilo's Afallon Teilo group, which is working to encourage the growing and eating of more local varieties of apple. Totnes, Lewes, Stroud and Brixton have created their own community currencies as a similar gesture in favour of a more localised economy.

Deleuze and Guattari (1987, p. 213) suggest that 'every politics is simultaneously a macropolitics and a micropolitics'. Interactions with formal political structures differ depending on local circumstances. Penwith Transitioners are invited to participate in their local Sustainable Communities Strategy, although lobbying and involvement in dialogue with local authorities is not generally a key part of Transition activity. In Stroud, where the local green party has six district councillors who are also involved in, or supportive of, the Transition process there are interesting possibilities for creative tensions inside and outside the council chamber. The US peak-oil guru Richard Heinberg was invited to address the cabinet, combining his visit with a public presentation attended by 450 people. This has led to the establishment of a climate change think-tank and useful informal links, although it remains to be seen whether this is positive for the Transition process or merely dissipates energy. This appears to be the weakest area of the Transition model, since theorising about politics is rudimentary or non-existent. Does it matter, however? There is little evidence to suggest that much macro-scale change will be manifest unless Transition Towns are successful enough to challenge the dominant economic and political structures. Whilst some authors suggest that without such a challenge, it is questionable how much Transition might be possible, others, such as Barry and Quilley (2008, p. 18), note that 'TT politics is not characterised by adversarial relations with opponents who make claims on the same goods or values'.

Deleuzean micropolitics involves 'minorities' doing something different, motivated by desire. Micropolitics is about critical emancipation, not necessarily *from* systems, but *towards* other types of open systems. As May (1994, p. 114) explains, 'it is a concept best understood as engaging in a practice that, while within the social network of practices and thus not transgressing that network, occupies a place that disrupts dominant practices by showing creative possibilities within these practices'. Deleuze wants us to explore creatively beyond the orthodox, to invent new, pragmatic ways of being and becoming.

This returns us to our 'big question' of whether small acts of resistance and micro-transformation can destabilise macro systems and effect transformation of the system as a whole. Whilst Deleuze argues that the 'minor' (or deviant) provides an *element* capable of destabilising dominant socio-economic codes, whether it actualises or not depends on both internal and external conditions of possibility: the force relations between elements that enable and constrain change. Deleuze's micropolitical thought is, thus, 'tactical' rather than 'strategic' (Patton 2000, p. 8), directed at local forms of transformation rather than at wholesale social change. It does not offer inevitable progress, but a

simultaneous presentation and critique. We cannot fully anticipate what effects and affects will emerge and there is no guarantee that acts of resistance will always lead to 'better' worlds (e.g. the Taliban resistance of the Russian occupation in Afghanistan and the subsequent effects on the lives of Afghani women).

Concluding reflections

We have offered Transition Towns as a testing ground for theories about how we might study social innovation that is motivated primarily by the need to respond to the threat of climate change. What general conclusions can we draw about the social and political potential of this sort of social innovation? Much of the left-wing criticism of Transition Towns concerns their political naivety and the absence of a class analysis. From the right, this criticism can be framed as the decrying of the localist response to climate change as a patronising and self-interested one by those who would happily spend a lifetime listening to BBC Radio 4, sitting by the Aga. Nothing could be further from the truth. It is the readers of journals such as this, who sit by computers and rarely get their hands dirty, who will be the most seriously challenged.

What is the social innovation that climate change requires? With the decline in oil supplies there have been suggestions that we may need to re-evaluate the importance of muscle power rather than petroleum power. This includes reconsidering the use of draught animals in food production and distribution, as well as the 'rehabilitation of manual labour' (Fairlie 2008, p. 33). Fairlie identifies the decline of manual labour as a consequence of the economic pressure on sustainable farming systems, leading to exploitation. As he points out, 'Peasants with sufficient land and means of production to make a living, rarely complain of drudgery however hard they may work. The memory of exploitation, in factories and on some farm estates, is still raw in the collective consciousness of the working-class, and only as this memory fades are we likely to see the rehabilitation of manual labour'.

The possibility of a rehabilitation of manual labour, and the reversal of the white-collar–blue-collar hierarchy, bring us back to the central focus of the original collaboration (see Note 1): using socially creative strategies to address social exclusion. At least in official circles, social exclusion usually focuses on the labour market, with the ready-made solution being the 'insertion' of the excluded into jobs, often marginal jobs, for example part-time, unskilled, or in the third sector. But in the Transition process, the emphasis is on an alternative, or diverse (Gibson-Graham 2008) economy. Labour-market skills are no longer primary in a process where practical manual crafts are at the heart of a sustainable economy. With more local production and distribution and less global trade, many of the jobs that people tolerate today will not longer have economic relevance. There is likely to be a greatly enhanced role for those growing food, whether organised through CSA or otherwise, and those who make and re-use the 'waste' of our present economy.

More radically still, Transition Towns see their role as creating sustainable livelihoods outside the formal economy, through self-provisioning and the creation of alternative currencies. This vision forces us to re-examine our concept of social exclusion and social inclusion, since many who are sustainability-conscious are, in spite of possessing 'employability skills', excluding themselves from the late capitalist economy where they are offered thin and destructive consumer identifies and seeking alternative socio-economic forms within which they can be comfortably included. Attempts to reorder the financial economy through supporting alternative currencies can also address financial exclusion. Deleuze's contention that creative conflict and deficiency are a resource can, perhaps, in social terms, be interpreted as suggesting that we need to use the waste of capitalism to fertilise a new, sustainable social order.[11] The people it marginalises – manual workers, the less literature, the young with their stake in the future, the old with their knowledge of more frugal ways of living – all have a central part in the Transition process. Thus, the socially excluded will be included not within the existing structure but within a new culture they will build in the margins of the present, in the space for a new becoming that the crisis of climate change offers them.

The driving force behind the Transition movement is that peak oil and climate change will require large-scale social and economic changes; it therefore involves a massive potential for social change. It appears that what the Transitioners, the researchers at the Katarsis workshop, and many contemporary social theorists are seeking is precisely a 'place for change'. This has been phrased in different ways: Deleuze's 'windows of opportunity', Harvey's 'spaces of hope' (2000), Langley and Mellor's (2002) 'transformative spaces in economy', even stretching as far as Dawson's (2006) characterisation of ecovillages as examples of 'yoghurt culture'. The shared call is for a place where, through experimental living, we can instantiate an alternative, sustainable reality.

So what is our role as researchers or engaged academics in identifying and supporting these yoghurt cultures? One central research question concerns how the behavioural change necessary to respond to climate change might also bring about greater social inclusion, and what the role of social innovation in this process might be. In thinking about this question, we have found that the philosophy of Deleuze can help to provide an intellectual framework. Deleuzean-inspired thinking does not restrict social innovation to a limited number of possibilities, nor potentially 'successful interventions' to already-prescribed outcomes or solutions. It offers a more flexible approach and a more fluid and dynamic vision of the time–spaces of territorial and social innovation. It emphasises innovation, experiment, 'the spark of the new': the capacity for generating innovation through 'an unprecedented leap, the capacity of the actual to be more than itself, to become other than the way it has always functioned' (Grosz 2001, p. 130). It is about the welcoming of difference; experiments in future living: 'experiments in which those excluded, marginalised and rendered outside or placeless will also find themselves' (Grosz 2001,

p. 166). Experimentation, for Deleuze, seeks alternatives (transformation) rather than transgression or revolt: experimentation as social innovation.

While we are, as ever, free to blunder into the research field with nothing more than a notebook or a tape-recorder, there are two reasons why the field of climate change study requires particular care and attention as to the 'how' of our research practice. First, this is a crisis of survival and so the people who we are studying are rightly afraid and vulnerable. Second, since the crisis concerns the human species we cannot claim academic objectivity: we are all involved spiritually and emotionally. It would appear that the philosophical approach offered by Deleuze helps to ease both these concerns. But more important than subscribing to any particular method or theorist, our conclusion is that, as researchers and engaged activists, we need to adopt a self-reflexive and emancipatory approach to this challenging but vital research field.

Acknowledgements

First, our thanks to the admirable people in communities across the world who are endeavouring to ensure the best possible future for humanity in the face of the threat from climate change. Thanks also to the Katarsians for intellectual interaction and fun, and especially to Len Arthur. We are grateful to the reviewers of the original version of this article whose comments led to significant improvements.

Notes

1. The impetus for this article comes from discussions that took place as part of the Katarsis Co-ordination Action, a pan-European Framework 6 research project that is concerned to identify creative and socially innovative strategies that people develop in reaction to social and individual exclusion.
2. Gilles Deleuze (1925–1995) wrote some of his most important works together with Félix Guattari (1930–1992).
3. Deleuze and Guattari would not agree with Hardt and Negri's (2000) advocacy of revolutionary assemblages, but would prefer 'local and specific struggles' that may 'gently tip' society in the directions of freedom and equality (Tampio 2009, p. 395).
4. A seminar series funded by ESRC, titled Local Action in the Face of Dangerous Climate Change and Resource Constraints, raised these issues. For more information, see http://www.liv.ac.uk/geography/seminars/ESRC-funded_seminar_series.htm
5. These can be found on the webpage http://transitiontowns.org/TransitionNetwork/Criteria
6. It is not our intention here to debate the merits and demerits of the term 'resilience' when compared with that of 'adaptation'. The key difference, as we understand it, is that in adaptation, a system does not necessarily retain its essence of the same function, structure, identity and feedback, but adapts so that it is more fit for purpose to the altered circumstances.
7. Permaculture is a system of working with the land first developed by Australian ecologists. It involves working in balance with ecological systems. The system has since been developed into other areas as a paradigm of living that responds to ecological requirements (e.g. Holmgren 2002).
8. The Transition movement includes self-conscious allusion to addictive therapy, along with other psychological techniques for behavioural change and personal growth.

9. A colleague, Len Arthur, has made an interesting connection between the Transition movement and Trotsky's notion of a transitional demand, as being one which appears to be framed within the existing socio-political system but would in fact undermine it – a sort of policy wolf in sheep's clothing.
10. See also Protevi (1999, 2006) and Hillier (2007, 2010).
11. It is notable that we manage to conduct this whole discussion without a single mention of the word 'class'. Exploring the impact of the transition to a post-carbon economy on the class structure might offer fertile territory to other researchers.

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