

13. Questions about Theory in Theory

Learning for them

Theoretically where have I been?

In Chapter 3 I described the various theories that prepared the ground for my exploration of how shifts to low carbon technology might come about. These were theories that ranged from the processes of the individual (e.g. decision theory) to the collective behaviours of a group (e.g. organizational theories about routines) to the dynamics of change at a broader sociological level (e.g. institutional theory; diffusion theory). Furthermore my survey of the literature paid particular attention to the sociotechnical axis – to theories that, one way or another, incorporated technology in their discussions. Looking across this axis I found theories that explained the emergence of new technologies in a way that challenged the notion of the rational actor (e.g. innovation theory, evolutionary economics), and theories that suggested that technology is embedded in social processes that fix it in place (e.g. social construction of technology and actor-network theory). The explorations led me to the Geels' multilevel model of system innovation. I found this theory very helpful in integrating several theory strands and in explaining how sociotechnical shifts at the system level might occur.

With this sweep of theory under my belt I went on to write learning histories and found that indeed in places these theories did fit well to the individual cases I was studying. If you pull out the learning history booklets that are included in the appendix and scan for theory boxes you will see some of the theory links I chose to highlight. Institutional theory and diffusion theory are drawn in to explain the dynamics of how the Merton Rule and the Nottingham Declaration spread and were adopted by local authorities. Social construction of technology (SCOT) theory is linked in to how cultural perceptions of district energy schemes in Southampton have been renegotiated (p. 34). The Geels'

multi-level model is relevant to all histories and drawn into three of them. For example in Kirklees (p. 29-31) I map the sociotechnical regime of “Social Housing” and illustrate how a combination of overlapping agendas and timing created a window of opportunity for solar energy to break through there. And in Barnsley (p. 27) I illustrate how the champion’s ability to talk the language of landscape, regime and niche was key in enabling a new regime of biomass heating to be adopted. The starting observation of the research: that local government is a sector that is somehow creating the conditions for breakthrough projects to occur was supported and to an extent explained through the research. The detailed learning history work showed that, in sociotechnical terms, the local government regime was experiencing a pincer movement of upward and downward pressures that were making it amenable to transition. From above comes the pressure of government policy that is becoming increasingly demanding on the issue of climate change. From below comes pressure from niche projects that have been cultivated by a variety of factors that line up to create the conditions for innovation. These factors include: the organisational unit size of local authorities, the regulatory framework that guides it, the range of multiple agendas (e.g. fuel poverty) that are at play, the size of the estate it manages and the level of partnership working it requires.

Meanwhile as I worked with the human stories I could find parallels too at the individual level. Decision theory was illustrated in the way customers made bounded decisions in Southampton (p. 31). The guiding nature of routines and their role in holding inertia was in evidence in all the histories and particularly in the small group work with B&NES. And throughout, though not always explicitly, I was gently inquiring into this notion of postheroic leadership. With the sense that a new kind of leadership might be expressed in these breakthrough projects I searched for an understanding of what that might look like. For shorthand I called it ‘postheroic’ leadership but was keeping an open mind as to what that actually was. In Merton and Nottingham I reflected on the nature of the posthero and his relationship with ego and humility; in Kirklees I saw postheroic leadership expressed as a leaderless group and reflected on the difficulties with that; in Southampton I found a group that seemed self-aware and effective in their distributed leadership and reflected with them on what this might mean (p.44-46); and in Barnsley, when I met a remarkable low carbon hero I wondered what place a postheroic world might and should make for such a man who displayed heroic qualities?

So starting from theory in theory, I moved along to theory in practice working more deeply with some of the ideas, while others have fallen away. Then with my 'bottom-up' analysis of Chapter 11, I have started to articulate the start of my own theory of what contributes to breakthrough projects in local authority.

Overall this amounts to what I will call a cycle of 'theory in action' and in this chapter I will reflect on it. First I will reflect briefly on what 'theory in action' might have meant for participants. I will then go on to reflect on what it might mean for existing theory. This then is a second cycle of inquiry into theory.

Reflections on Theory in Action

Theory for us

In this section I consider the use of theory with participants in the field. So it is a consideration of what theory means 'for us' in action research of this kind. From this comes a suggestion of where theory might belong in the learning history process.

Theories in learning histories

The question of the purpose of theory recurred at a project and at a personal level throughout the research. In one of our first project meetings a colleague described how she felt drawn to the theory, but that it felt distant when she met with participants in the field. As an action researcher she had to question this disconnect:



March 23rd 2006: The place of theory

From Transcript: Colleague Chris

Context: The Wilber/Ballard matrix has just been presented at a Lowcarbonworks meeting

"A shared inquiry question we have is how does this theory relate to what actually happens when we go in to the meetings because it feels very different".....

She went to say she felt: *"Seduced by elegant theory and a lack of desire to be debased by crude practice ...[and so she questioned] where is the connection between the two"*.

This marvellous question I carried with me through the project watching out for when I was being seduced. And I noticed right from the start that when it came to crude practice, theory had a very different place.

When I started with interviews, I sometimes mentioned theories to illustrate the kind of thinking behind the research. It felt that there was an appetite and an interest in this. In Merton, Adrian and I talked about “Strategic Niche Management” and he asked for more information about it. In Nottingham, when Mike mentioned how neighbouring local authorities didn’t like to subscribe to a Declaration with Nottingham in the name, I mentioned institutional theory and the forces of competition (mimetic) that can arise. We laughed about it. Theory then was only occasionally introduced, mainly in order to illustrate a point and in any case as the interviewing proceeded there was less co-inquiry. As my method chapter outlined I shifted more towards listening more and I saved my theoretical links and insights for the write-up.

But when the histories were written and I shared them back to participants I was surprised by how little they engaged directly with the sections on theory. They did sometimes mention the theory sections but somewhat at arm’s length and somewhat reverentially. One interviewee said

I don’t understand all you’ve written but it certainly is interesting

Participant feedback during a phonecall, July 2007

At the learning history workshop, of the 25 worksheets that were filled in immediately after reading, only one directly mentioned a theory section as being of interest. I started to build a sense of the theory sections being ‘showpieces’ – lending legitimacy – or worse academic superiority - but nothing more to the piece. But this was too rapid a conclusion to reach.

First of all, some people *did* really engage with the theory – and as the histories were built to appeal on multiple levels and in different ways, this was valuable.

With the Southampton learning history one interviewee was very interested in the theories that were featured there and in particular Fletcher’s ideas about postheroic leadership. I had posited the view that the team at Southampton were an exemplar of distributed and effective leadership and reflected on the lack of ego in the project. We explored this further in a detailed e-mail exchange.

And in one B&NES workshop, when I had sat participants down to read the Southampton history they had balked at its length. But then, whilst reading through one participant exclaimed, “*This is good stuff!*” He had read the short piece on decision theory and bounded rationality (p31). This wasn’t just a glib remark. Over and again throughout the subsequent session he deployed the theory, facetiously perhaps, to self-question the points he was making. “*Well of course I would say that wouldn’t I because I’m bounded rationally....*”.

Second, though people didn’t mention the theory, there was still the possibility it was enriching the reading experience. For example the social construction of district energy was an accessible and important point to make with Southampton (p.34). One reader at B&NES described, after reading, how he’d experienced resistance to district heating in his former position in a London local authority and how he’d been instrumental in changing the negative pictures in people’s minds of district energy as pipes running overland in Russia throwing steam into the cold air. “*Yes yes!*” – I wanted to say, “*that’s exactly what it says in the history – have you read that bit about SCOT?*” This often happened – people retold stories that might have been stimulated by the histories but they didn’t connect them directly to what they had read. I started to see this as data rather than an illustration of shoddy reading! If somehow the theories were being recognized and reported back in people’s own words then surely this was a point of validity?



Purpose of theory in learning histories

It seems that theory does have a place in learning history. It widens the appeal and can sometimes stimulate rich conversations directly or indirectly. It serves to legitimise the history as a piece of academic work. Care needs to be taken with this as this can, unintentionally, result in a power move, distancing the history from the reader. Academically, as a means of grounding theory in practical examples, it is valuable. By articulating the links I could deepen my sense of the theories used.

Theories from learning histories

As well as making links to existing theory, a theory was also coming out from the learning histories as Chapter 11 has described. My work with B&NES was one example where I worked with that bottom-up theory to check its value for participants. There I presented the meta-themes as an aide to gently stimulate collective organizational reflection. The meta-themes, brought to life by stories and perhaps made relevant by the learning questions, were then discussed as they applied in B&NES. When we discussed 'Risk' for example they recognised the analysis and could unpack where it was they were handling risk well or not. The conversation quickly became very honest and open as to the organization's relationship with risk. Here then, perhaps, was another way of opening up communicative space? The themes have been induced from the field and therefore have a resonant legitimacy. They relate to capability rather than blockages. As such they provide a consistent and safe base for honest and relevant inquiry. Had there been scope to continue it, more work with the themes could have been interesting. I felt this kind of work helped the group to develop a more subtle awareness of their own capacity to innovate.

An interesting third action cycle might have taken the evolved collaborative meta-themes from the work with B&NES and brought it to another authority so that the learning and validity might accumulate from one place to the next. However as with other aspects of this work, the tension comes from the time that will take. Deriving themes is a time-consuming task and the good conversations that might result from it are rarely sufficient to justify the investment. However if the resultant theory is also fed back into the academy then perhaps the argument for this valuable work might be strengthened.



Theory from learning histories

Working with thematic data from learning histories in an institutional setting has great potential as a way of opening communicative space in terms relevant and consistent to the field of inquiry. However the effort involved in generating thematic data of this kind is high and to justify it, its more general value needs to be appreciated either in terms of supporting longer-term learning across the field or in terms of building academic theory.

Reflections on Theory in Theory

Theory for them

This section marks a return, with the benefit of the experiences of the research, to some of the sociotechnical theory that laid the foundations for it in Chapter 3. Before my more conclusive reflections I want to admit that I found this return to theory difficult. The next excerpt is a short reflection that highlights the difficulty. In retrospect I think it was actually by spending a bit of time with these difficulties that I ultimately found I could reach a position. The following piece was written after a day spent with the literature earlier this month.



7th January, 2009 – The Black Anvil

It is evening and I feel hesitant about what angle to take now with the theory. All day I have

revisited some of the key papers that seem important to my as yet undefined 'argument'. It is something around evolution and action in the context of system's shift but every time I try to set it down I can't quite start or work into where I am without pulling in twenty pages of literature to position it first. I have skimmed back over institutional theory and Fletcher's postheroic leadership. I've tried to look for actor networks and place them in relation to the system innovation literature. And I've been looking in much more detail at Geels' multi-level model. Geels and Schot's recent 2007 paper contains a blossoming of critique and development of the multi-level transition model. This paper is coffee-stained and bescribbled by now.

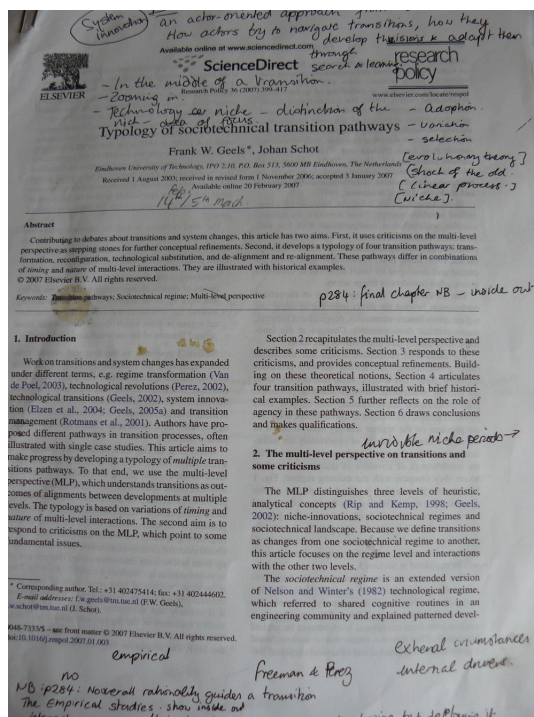


Figure 52: Coffee-stained & Bescribbled

The 2007 Geels and Schot Paper

them: one by one. He is not defensive, though I detect at times he is weary. And why wouldn't he be? His

model is complex and nuanced and becomes ever more so as he responds to critiques. To the critique of over-functionalism he draws in a huge chunk of social theory to prove a structuralist position following Giddens. I agree wholeheartedly!

To shortcomings in his description of sociotechnical landscape he draws in a new typology³² to show that events there are not always slow and gradual. His distinction between regular events, shock events, disruptive events and finally avalanche events seems timely. In a time of freak events like hurricane Katrina and credit crunch the words 'meltdown' and 'unprecedented' are part of our daily vernacular. This constant elaboration of the model is seductive. And I notice how his model, the very shape of it, is now inescapably imprinted on my mind. I think of decarbonisation and there's this model of his with its arrows and darts. It appears as a large black anvil on which change is to be hammered. Maybe this is the angle of theory for me now. Embracing this black anvil, but casting it away too.....escaping it.

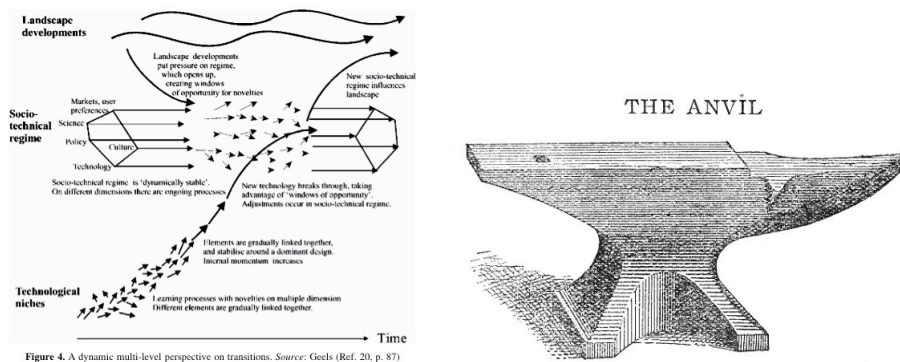


Figure 53 Geels' multilevel model imprints itself as an anvil in my mind

Embracing the black anvil

In this section I will reflect appreciatively on sociotechnical theory and in particular the Geels' transition model. I will draw in the learning from the research and the cycle of 'theory in practice' and relate it to his work. As importantly I will explain why I think it is that Geels' model has become so central to my thinking and to that of other researchers. I will highlight further research avenues.

The inter-related 'big issues' of our time (climate change, loss of species, global inequity... the list goes unbearably on) call for a large-scale and mindful transition to

³² Page 403 in Geels & Schot 2007 drawing on Suarez and Oliva (2005)

sustainability. Geels' work on characterizing the dynamic processes of such a transition – at a systems level - has been seminal in drawing together thinking from many different strands of theory. And he has done this in an accessible and understandable way. In the 2004 book: "System Innovation and the transition to sustainability", Geels' surveys the many literature streams from which he has drawn. He concludes that though:

Different literatures have interesting things to say about systems innovation,
 ...these are still too much in bits and pieces, which do not add up

(Geels 2004b p.31)

My experience of theory in practice confirms this. Bits and pieces have applied here and there but few give a sense of how a full-scale societal transition might take place.



Figure 54: The literature streams Geels draws on to create an integrated model.

I sketch out the literature that Geels' survey has identified as foundational to system innovation theory (see above). In doing so I note how similar it is to my earlier sketches of the theoretical territory. Many of the theory streams he mentions I had visited in my earlier literature survey. I shaded them on my sketch. Little wonder then that when I arrived at a set of ideas that brought everything together I felt a sense of relief. In Geels'

visualization of his multi-level model of sociotechnical transition was a map that covered the expanse of the territory. It stood out from the other theories as being all encompassing. Geels' multi-level model does not however stand in isolation. It is one compelling representation of a recent and largely Dutch school of thinking on systems innovation for environmentally informed change. It visualizes a framework of sociotechnical thinking that had been evolving over the past decade to integrate perspectives from economics, from sociology and from technology studies ((Rip and Kemp 1998; Raven and Verbong 2004a; Smith, Stirling et al. 2005)). Geels' model is integrative over time and over different systemic levels. To do this he brings together ideas that are amenable to each other but have largely been developed separately. It really represents a good synthesis of a lot of good thinking. And as my story of the black anvil shows, his later writing shows him integrating further and expanding the territory and the explanatory power of this model. I think this integrative quality together with its direct consideration of this burning question of how a sociotechnical transition to sustainability might happen is one reason why the sociotechnical framework of ideas is so appealing.

But for what is won in integration something is lost in differentiation. And Geels is quick to admit this. The model's strength lies particularly in its ability to explain things at the systems level – it proposes how regimes interlock and how different factors can link together and reinforce each other so that transitions to new regimes occur. This 'outside in' approach needs to be complemented with:

[An] actor-oriented approach working from the 'inside out'. Such an approach would look at how actors try to navigate transitions, how they develop visions and adapt them through searching and learning.

(Geels 2004b p.43)

It is responding to this call that I would place the theory I have been developing. Geels and Schot draw on Giddens' theory of structuration, as introduced in Chapter 4, to place the actor within the multi-level model (Giddens 1984; Geels and Schot 2007). Such actors, though they are not the rational automata implied by much of economic theory, are nonetheless faceless and their agency is theoretical. The learning histories introduce the human faces of some of the actors involved in projects of transition. Through the stories we can follow their vision and their processes of searching and learning. Theme

building has drawn out some actor-centric qualities that characterize these projects. The resulting analysis communicates then about agency in a practical rather than in a theoretical way. And what results is indeed largely complementary to Geels' perspective. My 'inside out' analysis suggests that, far from being strategically or policy driven, breakthrough projects erupt dynamically when contextual factors interact favourably with capable coalitions. This fits well with the 'outside in' conceptualization of transition as an evolutionary process of variation, selection and adoption rather than as a controlled, strategic process.

However my 'inside out' analysis also refutes some of the sharper edges of Geels' idealized model. The first edge it refutes is the distinction between niche, regime and landscape. Breakthrough projects in this research are realized by capable coalitions who exhibit complex qualities that include: actors' attitudes to risk, the flow of knowledge and trust; the ability to build capacity against shifting agendas and the ability to self-motivate and draw reward from the system in novel ways. Such an analysis suggests that breakthrough projects do not sit in the niche incubating until they are ready. On the contrary they often succeed because of the actors' agility in moving between levels. In the histories the narrative action sees protagonists moving back and forth between niche, regime and landscape in a series of well-timed but not often controllable events. And in the analysis the thematic insights relate across niche, regime and landscape in a similar fashion. So we might re-draw the model to show more movement between levels. Or we might collapse them altogether.

A second edge to be questioned in the model is the place of technology in it. The roots of system innovation theory and of Geels' model are, as the literature sketch shows, technology-centric. My earlier literature survey points to how I found sociotechnical theory that reaches beyond the purely socially constructed view to include elements of materialism very helpful and relevant to the research. However despite being built on ideas of the 'seamless' web (Hughes 1986) between the social and the technical the two are not interwoven but polarized by the language of the model. And my experience in the field has revealed that there too the sociological and the technical is often polarized. In the last chapter I described how I needed to actively work at expanding conversations at B&NES to keep the socio- and the technical- simultaneously on the table. In writing the learning histories I was similarly motivated to find a way to put relevant technical detail

together with human and contextual factors. Yet the forces to be in one conversation or the other are strong. At the learning history workshop, when asked what might enable/inhibit carbon reduction, only one person mentioned technology. How can this be squared with much of government policy in the UK and the US that sees technology as a pivotal part of the transition to a green economy? In summary then I conclude that there is a contradiction in the Geels model that is a result of the lineage of conversations that have created it. Though the definition of a sociotechnical regime puts technology on an equal footing with regimes of science, culture, policy, industry, markets and user preferences (Geels 2002) there is a tendency in the language and the definitions to emphasise technology. The word 'niche' has long been associated with technology. New technologies are carried as though sitting in sedan chairs into the regime by 'small networks of dedicated actors, often outsiders or fringe actors' (Geels and Schot 2007 p.400). Such a view emphasizes emerging new technologies at the expense of looking at emerging new configurations of science, culture, policy, users, industry and yes, technology. It is true the latter is a bit more of a mouthful but in practice it is more in keeping with the complex configurations that lead to transition. Such configurations blur the boundaries between the niche and the regime and between the social and the technical. The model might best be re-drawn and/or re-languaged to impart its message more consistently. The niche level might be removed or made to look more similar to the 'meso' level. The sociotechnical word might be altered. Improvements might be made to get the message more congruent.

Finally the third edge or boundary of Geels that my work calls into question is its landscape boundary. The model's exclusion of the natural world was noted earlier in the theory chapter. I concluded with the observation that perhaps this was a fair representation of our 'eco-blind' world. And I posed the chilling question as to whether as a species we are now evolving blindly and more in step with our constructions than with the natural world of which we are a part? What the analysis has shown however, and this reassures me, was that many of the actors involved in breakthrough projects were driven by visions of alternative landscapes that met society's needs in more equitable and sustainable ways. Such landscapes had within them the natural world as well. Far from blindness, it was the visibility of the natural world that compelled many of the actors to face risks and maintain tenacity in the face of challenging forces of inertia. So the 'real' landscape of Geels might be redrawn as less fixed or placed in relation to the

'imaginal' landscapes that drive many of our protagonists forward who draw their actions as much from an imagined future context as they do from the present. These imaginal landscapes are not unified. They are personal, yet collective and were to be found in quiet moments of interview as well as in reader responses to the histories. Only today as I write I have received an e-mail from a sustainability officer who has read Kirklees and finds great relevance in it for what he is trying to do in his local authority. He writes of the history:

I also liked the comment about the willingness of other projects to throw open their doors - I think that most of us realise that saving the planet cannot be done by a single community, local authority, or indeed nation. Nevertheless, this is such an exciting time and one feels that genuinely things are now beyond the point of no return nationally and internationally. The Climate Change Act was of course extremely good news. What is important is getting ordinary people engaged in the agenda of feeling that it is relevant to them, their families and their heirs.

A recent local authority reader of Kirklees.

Here I see him writing of a different landscape – trying to evoke it and inspired by the idea of it.

So Geels' model of system innovation is idealized. Naturally boundaries and definitions will fall down in the face of real life stories. From the research work I have done I have discussed some changes that might help the model to be better and more clearly developed. When I embrace the thinking this is where it leads me. Like Geels, Schot and others I extend the reach and the definitional scope. However this seems to me to miss a point. The three boundaries and edges I have discussed above suggest to me that at a certain point a model like this needs to be screwed up in a ball and tossed aside awhile. It has served its purpose. It introduces new thought patterns and a way of talking about change at the level of system that has hitherto not existed. Not unlike Wittgenstein's ladder it has moved me on in my thinking – from the familiar to the unfamiliar – and when I have climbed up I think sometimes I need to get rid of the ladder.

Escaping the black anvil

The previous section has embraced the ideas of system innovation and sociotechnical change as exemplified by Geels' model. It has explained the appeal of these ideas and suggested ways in which they might be developed further and made 'even better'. In this section I will look at this widespread appeal of these ideas and question it, suggesting that at certain points there is a need to switch away from it and not let it inform everything.

I think the image of the black anvil came to my mind as a symbol of the hegemony I was starting to detect around this emerging sociotechnical literature. The practicality and intellectual rigor of these ideas has won the widespread attention of policy-makers and researchers alike in the past decade. A new language of 'regime', 'transition', 'niche' and 'landscape' has evolved. Increasingly research effort is exploring how these new words and ideas might not only explain past transitions but also inform how a future, more purposeful transition might be governed (Smith, Stirling et al. 2005) or how transition pathways to a low carbon economy might be created (Foxon, Hammond et al. 2008). At the policy level, the 'transition approach' termed also as 'strategic niche management' attempts to draw on the sociotechnical view to refocus policy away from directive policy instruments towards more deliberative, facilitative styles of policy making (Rotmans, Kemp et al. 2001). However results have been mixed. In 2001 the Dutch Government set out a national plan to restructure its production and consumption systems over a generation using a 'transitions approach'. Success however was limited. Procedures to re-structure the energy domain were not institutionalized and researchers concluded that *"ecological modernization remains elusive"* (Smith and Kern 2007). The quest for how 'transition management' might be done goes on. Yet the theme of chance so evident in the learning histories calls into question whether it might ever be found.

When I bring stories from the learning histories into Geels, I can get them to fit in by suggesting they are the 'inside out' view as I did in the last section. But it feels like I am hammering them on the anvil to make them fit. There is another step back I need to take to reclaim the value of these narratives. This is a mode switch not unlike that suggested in learning history and discussed earlier when the researcher is asked to mindfully switch orientations from the pragmatic, to the research and to the mythic orientations.

Here I am suggesting that whereas it might fit the research orientation to remain within the Geels' model, a mode switch into the mythic orientation complements by putting the model firmly and respectfully to one side.

In my search for ways to bring about a shift to a more sustainable society, the kind of action research I have been doing shares the aims of 'transition management' as well as its conceptualisation of change as an evolutionary, experimental process. However my work is not future-oriented. It is not seeking a way to purposefully 'manage a transition to a desired point (a decarbonised economy, a low carbon future etc)'. Instead it is present-oriented and presuming some kind of transition is underway. It is seeking a way to 'ride this ongoing unknowable transition' in an elegant way. This implies a switch in orientation from theory to practice, from objective policy-making to participative learning and, lastly, crucially from the analytical to the mythic. This switch marks a return to stories and themes and vignettes of practice that rehumanise and colour the world of system innovation that is clearly, and intellectually delineated by Geels and other writers in this school of thought. When I mode switch from this black anvil of ideas into practice and learning I also find myself back on relational territory – 're-appearing' the complex intentions, conversations, and relationships between humans that have made a difference. This is the territory of postheroic leadership – an idea I have carried along with me during the research as shorthand for all that might be forgotten – and the idea of the posthero(ine) is one that has direct meaning for me, as I will discuss in the next chapter.

Summary: theory in theory

I have related the work I have done to sociotechnical theory in general and to Geels' multi-level model in particular. On the one hand the data and stories I have gathered are suggested as a complementary colouring in of this theory which necessarily is idealized and somewhat abstract. On the other hand, I have suggested that the data and stories I have gathered do not colour things in but rather they represent an entirely different picture of change within a set of imaginal landscapes. This picture works to expand conversations beyond the polarities of the socio- and the technical. It sees change as less purposeful and rooted in practice, narrative and learning. Such a picture is a

necessary complement and balance to a set of ideas that might otherwise fall victim to their own powers of seduction. Were this to happen, like the regimes it describes, such theory might guide future decisions and actions with an overly theoretical and technological bias.



A reflective pause....

So there. That's my theoretical contribution. Is that helpful? Is it the start of something or just a loud clap in an empty room? This writing has had its thrilling moments when a sentence has unreeled itself logically and appeared. But I have watched myself warily, aware all the time of the valiant attempt in action research to take theory OUT of its ivory tower and to increase its relevance. I have written this piece to build bridges between research disciplines, to address scope and to be counter-intuitively experimental by being conventional. So it is for the academy, 'for them' in the first instance. And is it for me? Maybe. There is a feel of ego in writing like this. I can't quite place it but it is there. I am fully in my logical mind when I write and there is something liberating and freeing about being able to say something, having earned that right. But away from my head what pleases me more about this piece is its place in part of this overall story. I've set out to be inclusive, to explore scope and to expand conversations. This piece feels congruent with that and so I become less worried about whether or not it achieves what it sets out to do. I reflect then that elegance and form seem more important to me than function. I think maybe if I can work with this elegance I can trust whatever function might unwind from it.

14. Questions about the Postheroine

Learning for Me

A Resonant Question

In the course of doing this research our eco-sociotechnical system has more palpably deteriorated. The icecaps have melted at a faster rate than expected. In the UK carbon emissions reduction targets have been increased from 60% by 2050 to 80%. From climate scientists we hear there is an increased urgency to act if the most severe effects of climate change are to be avoided. And in the light of recent more extreme climatic events³³ the public discourse seems to be shifting now from how we might mitigate climate change towards how we might adapt to it. Nevertheless loss of species, loss of vital rainforest and loss of biodiversity continues unfettered. And with the credit crunch, the economy which is built on the principle of digging things out of the earth, making things people don't really need, shipping them vast distances and then throwing them back into the earth

The news today, 15th February 2009

Darwin's 200th birthday anniversary is being celebrated.

Rumours that Lloyds Bank will be nationalised as banking crisis continues and economic recession deepens

Respected IPCC scientist warns that in the light of new emissions figures from 2000-2007, climate change will happen more rapidly and with more disastrous effects than previously thought.

A scientist from the institute for the advancement of science estimates 100 million earth-like planets capable of sustaining life might exist.

Jade Goody, a celebrity made famous by Big Brother and diagnosed with terminal cancer prepares to wed and die in the public eye

³³ e.g. The European heat waves in 2005. The UK floods of 2007