Edge, Empowerment and Sustainability: Para-Academic Practice as Applied Permaculture Design.

Tom Henfrey, Schumacher Institute for Sustainable Systems, Bristol, UK.
tom@schumacherinstitute.org.uk

This chapter draws on my experiences of working at the interface between academia and grassroots movements for environmental and social justice. Its central argument is that this interaction reveals basic incompatibilities between the ethical and practical imperatives of these movements and conventional academic practice. This cultural clash results from academia being embedded in institutional forms that uncritically, and at times tacitly, reflect the worldview and dominant values of advanced capitalism. These values, and the often subtle ways they express underlying ethics of patriarchy and hierarchy, are fundamentally at odds with basic criteria for sustainability and equity.[i] As a consequence, such interactions are most effective if they incorporate a transformative element, in which sustainability practitioners shape research and teaching in the light of their own values, methods and ethos. This implies a marked reversal of the power dynamics that conventionally arise when working across university-community boundaries. Para-academics, as liminal agents familiar with and (more or less) comfortable in both environments, play a crucial role in allowing this to happen, but in order to be effective require support from insiders, sympathetic to radical agendas but committed to working within institutions to advance them.

The core context for my own para-academic practice is permaculture: as a research setting, as my own 'home' community of practice, and, perhaps most importantly, as a set of tools for designing collaborative research projects.

The term 'permaculture' originated as a contraction of 'permanent agriculture', and it is still widely viewed as an elaborate form of ecologically minded cultivation, but its actual scope is far wider, and better summed up by the newer term 'permanent culture'. It is a design methodology, for the deliberate creation of habitats that reflect its three core ethics of Earth Care, People Share, and Fair Shares. Permaculture lies at the intersection of these three ethics, and derives its methods from careful observation of natural systems and abstraction of principles through which conscious design can emulate these.[ii] The tension between these three ethics and the dominant values of 21st century capitalism means permaculture is intensely (though not always explicitly) political, and inseparable in the view of many practitioners from more overt forms of social action.[iii]

I write, therefore, from three intersecting and mutually interdependent perspectives: as a committed practitioner and student of permaculture, as an advocate seeking to apply my professional knowledge and skills in support of improved permaculture practice, and as a researcher who applies permaculture methods in the design of the projects I am involved in. Concepts, models and methods derived from permaculture have become key tools with which I promote the three ethics in my work.

In this chapter, I illustrate three principle ways I define the self-perception of my position as a mediator between the weakly reconcilable worlds of academia and sustainability activism: the concept of edge, the model of the forest garden, and the method of stacking. Following some further context setting, subsequent sections explore how each of these could apply to a para-academic practice aiming to derive increased environmental and social benefits from university-based research.

Context

The main context for this ongoing experiment in applying permaculture design to academic research is the development of the *Transition Research Network*, which aspires to provide a framework for more effective collaboration between academics and practitioners in the *Transition* movement. *Transition* originated in 2005 as an application of permaculture design

to community-based responses to peak oil and climate change.[iv] A combination of deeper analysis into the roots of these issues, greater experience of the practical challenges, and shifts in context and priorities since the global economic crisis became conspicuous in 2008, have led to increased focus on the pursuit of wellbeing through sustainable regeneration of local economies.[v] *Transition* has retained close links with permaculture as a core methodology[vi] during its growth into a global network that now includes over 1000 active groups in several dozen countries.[vii] On the way, it attracted much interest from academic researchers. In principle this is a welcome development: formal research skills could be an invaluable part of an inherently experimental approach like *Transition*.[viii] In practice, *Transition* groups who have collaborated with researchers report mixed experiences;[ix] in some cases, perceived self-serving, manipulative or exploitative behaviours led to researchers being regarded with suspicion, or even hostility.

My engagement with this issue has led me to the personal conclusion that the basic reason this relationship is so problematic is that it reflects a clash between the core ethics and values of *Transition* and those underlying the economic system it aspires, depending on one's depth of cynicism, to either transform or replace. I take for granted the reader's understanding of the inherent incompatibility between growth centred capitalism and both environmental protection and social justice, in terms that are structural[x] as well as cultural.[xi] In the UK, academia now reflects several decades of uncritical central government commitment to neo-liberal orthodoxy. As a consequence, it tends to reinforce rather than mitigate the corrosive effects of neoliberalism on broader society.[xii] This is despite the admirable efforts of many individual academics committed to promoting sustainability, equity and social justice through their work:[xiii] the relationship between academia and activism remains highly nuanced. There are thus clear tensions between the consequences of universities domination by the defunct cultural outlook and institutional structures of capitalism and the ethical and political commitments of many academics. I would also take for granted the assumption – although it may not be widely shared either within the academy or beyond – that a fundamental part of the social role of universities is to be at the forefront of finding and enacting solutions to the most pressing issues of our time, not to perpetuate them. These tensions create potentially fertile grounds for collaboration with social movements. Internal and external pressures towards sustainability are, if taken to their logical conclusion, highly subversive of the status quo in universities,[xiv] as are the possibilities to emphasise grassroots collaborations with marginal and poorly resourced groups, rather than powerful incumbents, within the emerging requirements for impact.[xv] The 'living laboratories' where people are experimenting with the cultural, social, economic and lifestyle innovations necessary to reconcile long-term sustainability with universal provision of acceptable quality of life can provide valuable opportunities for both research and learning on sustainability, and can in turn benefit from the experience, access to resources, mainstream credibility and potential leverage in wider society that universities enjoy.[xvi] The concepts and methods of permaculture, when applied to academic research, are potentially transformative: both institutionally and methodologically.[xvii]

Edge, Ecology and Empowerment:

Edge – processes of productive interchange among different elements and/or systems - is a central concept in permaculture design. On one level, edge is achieved by choosing elements that support each other's needs and co-locating them in space and time in ways that maximise their mutually beneficial relationships.[xviii] A good example is the 'chicken tractor', where chickens are housed adjacent to a vegetable patch, and introduced into a crop rotation system. Rather than clearing a bed after it has been used to grow annual vegetables, it can be fenced and used as a chicken run. The chickens enjoy foraging for insects, worms and other food, and

clear the space of all vegetation at the same time as manuring it with their dung, leaving it ready for planting. Eggs can be collected at the same time as vegetables are picked, which is especially handy if both are close to a door leading directly from the kitchen, and if the compost heap is nearby it is easy to add kitchen waste (which might also feed the chickens), garden waste and soiled straw from the chicken house, as well as transport the finished compost to the vegetable patch.

This concept of edge is a classic example of how permaculture design observes and adapts natural processes. In ecology, an edge or ecotone is a site where two ecologically distinct zones meet, creating a third that has features of both. An ecotone also has unique properties emergent upon the interaction among the two: coastlands are neither land nor ocean, estuaries are neither river nor sea, glades and woodland borders are neither forest nor open field: each offer features, and supports species and communities, different from those found in each habitat alone. Ecologically, these sites are marked by unusually high levels of diversity and productivity, making them important engines of evolutionary change.

The use of edges is also apparent in the settlement and livelihood strategies of many indigenous peoples, directly dependent for their livelihoods on the sustainable exploitation of natural resources. Indigenous populations have preferentially settled edge habitats such as rivers, coastlines, and forest edges, access to areas with diverse ecological properties being a crucial dimension of resilience in resource use.[xix] Traditional management practices often involve the extension of edges, or the elaboration of new ones in both space and time.[xx] The result is higher complexity, diversity and productivity habitats: enriched ecologically and in terms of use value to humans,[xxi] outcomes consistent with western ideas of sustainability and resilience.[xxii]

Intercultural exchange can reproduce the ecological advantages of ecotone settlement. Trade, for example, allows a group of people access to a greater range of resources than are native to their home area.[xxiii] In direct analogy to the ecological role of edges, intercultural interchange can also be a source of social and cultural resilience, but only under certain conditions. Marked power imbalances generally ensure that the benefits to the dominant group are at the expense of the other: as evidenced not just in the bloodier episodes in the history of the global expansion of capitalism, but the linked, catastrophic declines in global biotic and cultural diversity,[xxiv] erosion of traditional knowledge systems when mixed autochthonous livelihoods give way to mass production for external markets, and the conceptual reduction of non-European societies to material for elite political and intellectual agendas.[xxv] In contrast, where marginal peoples, supported by appropriate legislative measures, effective engagement with central government, and/or the support of intermediaries, determine the conditions of their own integration into the global economy, it can proceed in ways that enhance local economic, social-ecological, and cultural resilience.[xxvi]

Despite the very different contexts, the observation that political economy affects the creation of edge is also relevant to interactions between academic institutions (and their employees) and grassroots movements for sustainability. There is no doubt that they are in productive interchange. Permaculture has been characterised as a “feral ecology”,[xxvii] and continues to be influenced, albeit with inconsistent accuracy, by scientific advances generated within the academy. Transition draws heavily on a number of areas of academic inquiry, including some of the most important literature on Transition itself,[xxviii] and has initiated significant research projects of its own.[xxix] These include establishing the Transition Research Network, which (in part) applies permaculture design to the cultivation and enrichment of this edge, both to improve Transition's capacity to learn from experience and report the findings and in support of efforts at transformation within the academy. A useful model for this interaction is that of the forest garden, which the next section examines.

The Forest Garden:

Apprentices on the UK Permaculture Associations Diploma in Applied Permaculture design, are encouraged to include in their portfolio an action learning pathway, that applies permaculture methods to designing the changes in their life circumstances they anticipate bringing about as part of their diploma journey. Reflecting permaculture's roots, and most familiar applications in garden, and to make more vivid the rather abstract way in which design principles and methods apply to non-material concepts, many incorporate some sort of gardening metaphor.

My metaphor for the process of transforming my professional life through permaculture, delivered through and documented in my diploma, is that of the forest garden,[xxx] a multi-layer agroforestry system. Based on observations of edges in both space – the occurrence of plants of different heights and habits at woodland edges, in glades, and in open patches resulting from treefalls and other disturbances – and time – the succession from herby weeds and grasses through shrubs to high woodland typical of moist temperate climates – the forest garden has become one of the icons of temperate climate permaculture. Structurally, it has up to seven layers of vegetation at different heights, with plants interacting both within and across these (Figure 1). Trees and other upright plants shelter and protect those in lower layers, creating more humid, less exposed microclimates in which the latter can flourish, and providing support for climbing plants. Ground-hugging plants protect the soil and prevent the establishment of grasses that aggressively compete with young trees. The diversity of plants and their products provides their human users with a wide range of edible and other useful harvests throughout the year, and their integration in a stable woodland-type agroecosystem keeps ongoing maintenance needs to a minimum. In this way, the forest garden exemplifies a permaculture vision of high diversity assemblages of species in mutually beneficial relationship.

The diversity of elements and functions that characterises a forest garden, and its contrast with conventional approaches in (especially) commercial cultivation that aim to maximise yields of a single or small number of products, are the heart of my use of it as a metaphor for my para-academic practice. My personal model treats the high canopy layer as equivalent to the prestige elements of academic practice – the high profile publications, grants, international conferences, and appearances in mainstream media that make for an illustrious career. The lower tree layer I consider to represent my more strategic work within specific communities of practice including contributing to this book: creating frameworks to enable effective collaboration between academics and sustainability practitioners, the development of new research projects to support this, organising workshops and other learning events on behalf of these wider communities, and my participation in the enabling frameworks initiated by others by, for instance, undertaking training activities, using a complementary currency, and preferentially buying basic goods from local businesses and workers' co-ops. The shrub layer represents my direct participation in local action, whether on neighbourhood, city or regional scales: involvement in my local Transition group, community garden, energy co-op, and CSA. The herb layer represents my immediate professional and social environment: close colleagues, friends, neighbours; the ground cover my more intimate circles of friends and family, my immediate sources of emotional sustenance and support.

My soil is my internal condition of physical, emotional and psychological health: just as permaculture gardening is based around creating a healthy soil in which plants will naturally flourish rather than trying to look after the plants themselves, the main factor supporting successful para-academic activity, in my experience, is my success in nurturing my own well-being. The root layer includes the subterranean activities of plants in all layers, that both draw upon the soil and enrich it with their roots, in particular the nitrogen fixers that draw nourishment directly from the surrounding air and make it available to the whole forest garden community, and dynamic accumulators whose long roots draw minerals from the

deepest layers of the soil. Building a healthy soil ecology represents the personal, inner transition that often accompanies deep acceptance of the state of the world: not as an excuse for apathy, but as a platform for assuming personal responsibility for contributing to making things better.[xxxi] Climbing plants highlight the linkages and interconnections among all of these. Many of my most important professional collaborations have arisen from personal friendships; I initially met many of my closest friends through professional circles. The internal cultures of Transition and permaculture support this in the way they build community by encouraging and creating spaces for sharing in the mundane aspects of everyday life: eating, camping and bunking together, holding and caring for each other at the emotionally challenging moments that are inevitable parts of transformative practice, celebrating and laughing together, grieving and crying together, and the sense of trust and familiarity that comes from all of these. It doesn't mean that everyone I meet through permaculture will become a close friend, but it does create powerful bonds of trust and shared understanding, the kind that, for example, mean you will unhesitatingly invite someone you have never met before to stay at your home or eat with your family when they pass through your home town. These lower layers are where attention is given to the emotional and affective aspects of any group activity – quite often as neglected in community and activist work as in academia, but vital to the personal and interpersonal sustainability of any endeavour.[xxxii]

The forest garden is an exemplary demonstration of edge, in which vertical layers and plants within them interact in myriad ways across space and time. A diverse and structurally complex polyculture of this type can fulfil many different functions simultaneously, each of these in multiple ways. This makes it far more resilient than simpler systems to loss or disruption of any of its constituent elements and processes. Compared to a conventional commercial orchard, canopy trees in a forest garden are more widely spaced (to allow light to reach plants in lower layers) and include a far wider range of species and varieties. The yield from any single species – and probably the total yield from all trees in this layer – is lower, and more widely spread out across the seasons. However total production may well be higher, and the broader set of yields that take into account factors such as habitat enrichment, amenity value, biodiversity, reduced dependence on material inputs, higher still. In this way, like most polyculture systems favoured by permaculturists, forest gardens prioritise diversity and resilience over efficiency.

Specialisation can promote fiscal efficiency, as the choices of most commercial farmers reflect. If the only goal is to maximise financial returns, monocultures and other extremely low-diversity systems will seem attractive, vulnerability to pests, diseases and adverse market conditions nonwithstanding. There is an instructive contrast with small-scale farmers responsible for their own livelihood and food security/ and lacking state support to buffer the risks of specialisation. When they focus predominantly on a single crop (which may be for cultural as well as commercial reasons), cultivation and/or use of a far broader range of secondary products ensure food is available even in the event of its failure.[xxxiii] Preliminary findings from research (not yet published) by the UK Permaculture Association suggest that commercial forest gardens tend to strike a different balance between efficiency and resilience, with smaller numbers of species and varieties than those cultivated mainly for home use, or with educational, wildlife and/or amenity value in mind, and often only three layers.[xxxiv]
The favourable comparison of forest gardens to agroindustrial monocultures maps perfectly onto that between research and learning undertaken by permaculturists, and an academic mainstream that increasingly reduces them to what are effectively commercial enterprises.[xxxv] Increasingly scarce financial resources are allocated to universities in a competitive market for prestige and status, leading to accumulation and consolidation of resources in ways clearly at odds with permaculture's 'fair share' ethic.[xxxvi] This infects academia with institutional values at odds with those of any pursuit dedicated to the enhancement of life. The reason

universities have become such toxic working environments, and why their efforts towards more sustainable operations are so limited and ineffective,[xxxvii] is not due to lack of effort, certainly on the part of individuals, but because their colonisation by free market fundamentalism, and consequent uniformity of purpose, renders them structurally incapable of operating any other way.

Of course, many working within academic institutions actively oppose this orthodoxy through their dedication to working in equal partnership with community groups who hold contrasting values.[xxxviii] Such partnerships assign equal or even greater value to what some, with qualification, refer to as the more feminist aspects of any interaction:[xxxix] those of participation, cooperation, and the building of trust, friendship and community. Placing these lower layers of the garden in balanced, mutually supportive relationship with academia's loftier concerns requires a conscious effort to overcome the power imbalances inherent when academics control access to funding and other resources, and through these the terms of partnership. Understanding this requires a closer look at the dynamics of interaction within a forest garden and their translation into academic practice, both of which employ the permaculture technique known as stacking.

Stacking:

The major technique used in permaculture to create edge, which the forest garden again exemplifies, is that of stacking: loosely speaking, multifunctionality. Considered placement of elements in mutually supportive interaction in both space and time creates new pathways for the exchange of matter, energy and information, leading to new emergent functions, and builds up a complex network of interrelationships in which the whole is far more than the sum of its parts. This is impossible where a pronounced power imbalance exists: when non-academic partners in a research project are no more than a source of data, or evidence of 'impact', or when softer, lower layer yields are discounted in favour of numerical metrics of relative performance such as scores in the *Research Excellence Framework* and *National Student Surveys*. In a broader view, time an academic spends at a research site collecting data is time for personal reinvigoration in a balanced, nurturing and supportive environment, time to renew and deepen relationships with collaborators who have also become friends, to retune with the priorities of activist movements, to reconnect with nature and inner life, and all sorts of other opportunities that might be scarce in the hectic pace of academic life. Time spent on building relationships with collaborators is only wasted if those relationships are viewed instrumentally in relation to research goals, and in turn to centrally imposed performance targets, not as a means to deeper intellectual and non-intellectual insights and to better understanding of needs and perspectives different to your own that your research might help address, or indeed as worthwhile ends in themselves. If research employs ethnographic methods it is also an integral part of data collection and researcher orientation, which may be directly productive of further non-academic yields.[xl] There are very many different ways, within collaborations that attach equal value to practical, community and personal goals as to academic targets, to find and create benefit in all aspects of the complex interpersonal processes that any engaged research partnerships implies.

Para-academics, edge people by their very nature, are particularly well-placed to employ stacking by virtue of their multifunctionality and ability to take on simultaneous multiple roles. Fluent in the languages and lifeworlds of both academia and grassroots action, sympathetic to but not constrained by the demands of academic life, both engaged with and able to detach from activist causes, they both face unique demands and challenges,[xli] and are uniquely equipped to identify and create common ground and anticipate and deflect possible conflicts. In such collaborations, theirs is the role of the permaculture designer whose systems-level view, alive to potential synergy, creates the enchanted space in which new and

unanticipated possibilities, beyond the imagination of any individual participant, freely and spontaneously emerge.

Para-academics can only help create and nurture these edges in partnership with those committed to working as a force for positive change within universities. These collaborations are analogous to that between Martin Crawford's well-known forest garden at the *Agroforestry Research Trust* in Dartington, Devon and a low diversity tree plot at its immediate western boundary. Gloomy and virtually lifeless below its monotonous canopy of ash and conifers, it contrasts starkly with the vibrancy a few feet away, where over two hundred useful plant species are crammed on two acres in a three dimensional array of bewildering complexity. Although it casts some afternoon shade on directly adjacent parts of the forest garden, and attempts to colonise it with ash and other tree seedlings that must be weeded out, this neighbouring plot provides a vital service as a shelter belt. Crawford chose to locate his forest garden in this exact spot because it protects the trees he has planted from the wind: he estimates they have grown 50 percent faster than they would have done on an exposed site. Meantime, and knowing its owners might decide to fell it at any point, he has planted his own windbreak of multifunctional Autumn Olive and other mid-storey trees.
To me, this is a powerful metaphor for the role of para-academics and their collaborators in more secure academic positions in nurturing diverse, multi-layered forest gardens of community-based action research towards sustainability and social justice. In the face of overwhelming institutional pressures towards 'excellence' and other absurd neo-liberalisms, university-led projects and programmes may not be able to emulate their partners fully, but they can provide them with a nurturing environment. In doing so, they make themselves more like commercial forest gardens, who concede a measure of diversity and structural complexity to the demands of market efficiency, but do not treat it as an absolute goal, and so succeed in also retaining their dignity and life-enhancing nature.

Fair Shares: Pattern Languages and Democratising Research Practice:

Creating a social edge is never straightforward. In addition to the right combination of activist, para-academic and academic partners, reconciling the different interests and perspectives in any university-community collaboration requires suitable collaborative tools. In the *Transition Research Network's* initial collaborations with Durham University's Centre for Social Justice and Community Action and other university-based partners, we used an approach that I originally encountered through permaculture, that of the Pattern Language, to create such a tool.

Pattern Languages were originally developed by a team of architects led by Christopher Alexander, as a tool with two main purposes. First, to capture the implicit knowledges responsible for the beauty characteristic of much vernacular architecture.[xlii] Second, to encode the expert knowledges of specialists in construction processes (planners, architects, building engineers, builders) in ways that make them accessible to non-specialists, in order that residents and users can themselves determine the course of new building projects.[xliii] The control of 'experts' over the process is much diminished, and their role reconfigured to that of facilitators of this user-led design process.
In parallel fashion, encapsulating the specialist knowledge of trained researchers in a pattern language allows them to take roles as facilitators of collaborative learning processes in community-led research projects. Our pattern language for *Transition* research[xliv] draws upon published literature in participatory action research and related areas of cooperative inquiry,[xlv] on permaculture-related sources including pattern languages for forest garden design[xlvi] and Transition,[xlvii] and other pattern languages with community development applications,[xlviii] including Alexander's original. Its aim is to support the collaborative design of research projects in which all participants have equal opportunities to flourish and grow,

and yields of all types are recognised, valued and nurtured.

In attempting to apply his pattern language, Alexander reports tensions and confrontations of a type familiar to any practitioner of community-led research within conventional academic establishments.[xlix] His account of the construction of an educational campus in Japan describes how the interventions of lawyers and others working for the conventional construction industry, exercising a narrowly profit-led agenda, consistently undermined his collaboration with a principal and staff keen to employ his highly participatory approach, recognising its affinity with their own commitment to radical pedagogy. It also reveals nuances in this interaction, including occasions when aspects of the project benefitted from the organisational efficiency and material power of these corporate giants.

Similar subtleties and contradictions pervade relationships between the academic establishment and transformative approaches to research. Of necessity, these operate on the margins of conventional academic practice – needing both to be free of its institutional limitations and to draw upon the resources it has to offer. Like all efforts towards fulfilling the well-known anarchist pledge to 'build a new world in the shell of the old', they rest upon experiences, skills and insights, individual and collective, developed within the very institutional framework they seek to supersede.

A case in point is the UK Research Councils' Connected Communities programme: the influence of an underlying academic politics means funds are allocated haphazardly and according to criteria that are often bizarre, **and** the programme has supported innovative boundary-crossing collaborations (including core Transition Research Network projects) that challenge incumbent academic regimes in important ways and could before never have aspired to public funding. Embracing these tensions and working with them is, I feel, core to realising the transformative potential of para-academic practice. They carry dangers of co-option comparable to much of the work of NGOs which although often dedicated to softening the social impacts of predatory capitalism, effectively contributes to its legitimisation.[l] Similar contradictions have been observed in the introduction of impact among non-academic users as a key criterion in the assessment of funding applications to the UK Research Councils.[li] My personal account of research designed using permaculture principles, and in relation to its ethics, could be read as similar to some of the progressive and superficially benign forms of post-modern capitalism.[lii]

Key to understanding the difference between them, and strategies for realising the consequent potential for edge processes, is in relation to the concept of energy descent.

Energy Descent

Co-originator of permaculture David Holmgren has suggested that the effects on human society of the combination of climate change and declining ease of access to non-renewable energy supplies could follow four trajectories.[liii] He refers to these as techno-fix, collapse, green-tech and energy descent. One extreme, the techno-fix, assumes that technological innovations that remove environmental constraints or make them irrelevant will allow capitalism's growth and expansion to continue as it has done since the industrial revolution. Nowadays taken seriously only by the most deluded and ill-informed, this nonetheless is the implicit assumption behind large-scale public investment in unproven and doubtful technologies like nuclear fusion and carbon capture, not to mention the credibility, in some eyes, to the outright insanity of geo-engineering. It is also the tacit basis for both the growth-oriented culture of universities and the self-interested outrage of academics who find their rations of crumbs from the corporate feeding frenzy diminished. Equally insane – but certainly more realistic – are those who welcome the collapse scenario, the only possible consequence of a failure to rein in the damaging ecological and social consequences of continued growth in the global fiscal economy.

Constructive thought and action lie within the space bounded by the green-tech and energy descent scenarios, and in the dialogue between them. Green-tech, typical of efforts towards more sustainable operations within universities, accepts the need to work within ecological and other limits, and sees this as achieved through a levelling off, and perhaps slight contraction in, economic growth. This would be achieved by replacing environmentally damaging technologies such as fossil fuel and nuclear power with benign ones such as renewable energies. , increased efficiency of resource use reconciling this with continued overall improvements in material living standards. The energy descent scenario, in contrast, sees absolute reductions in levels of material consumption from those typical in Western Europe and North America as not only essential, but in many ways desirable, and in fact as a necessary means towards improved overall standards of living and levels of health and happiness. Accommodation of natural limits to human activity, in this view, is not a constraint on improving the human condition but a desirable condition, whose achievement will be a mark of social and cultural maturity.

This difference of perspective that distinguishes the green tech and energy descent scenarios is also the crucial difference between permaculture and more reformist approaches that do not situate themselves within explicit ethical frameworks equivalent to the three permaculture ethics of Earth Care, People Care and Fair Shares and as a result are uncritical of, and appear to limit themselves to operating within, existing structures of business and governance. Power hierarchies within these structures, however well obscured by rhetorics of inclusion and participation and programmes for corporate social responsibility, not only entrench systemic addictions to fossil fuels and other unsustainable practices.[liv] They are also fundamentally incompatible with both distributive and procedural aspects of the Fair Shares ethic – which itself is a precondition for Earth Care and People Care.

The same is true of academia, whose positive contributions to sustainability and social justice can only ever be cosmetic if uncritical of the political economy of its own reproduction. To return to our forest garden analogy, it is as if lower layers are viewed only as means to support the tall canopy trees, rather than of equal and inherent value in and of themselves. The social and affective aspects of life are acknowledged, but only to the extent that they contribute to productivity in fiscal terms, other yields having no direct value. The imperative towards financial growth is neither challenged nor balanced with other forms of growth – for example in quality of social life, or emotional well-being. Money is a poor indicator of real wealth or value. This is partly because it excludes from consideration factors that are not easily commodified, or quantified in order to be translated into monetary value. Equally relevant for this analysis, it is also because it does not in any consistent way reflect energy: the way a phenomenon reflects accumulated energy.[lv]

In contrast, permaculture's quality as a tool for negotiating energy descent depends in crucial measure on its ability to reveal, appreciate, reconcile and create synergies among multiple, overlapping yields of different types. Research comparing intentional and non-intentional communities in North America, for example, shows a greater proportional contribution of social rather than material goods to quality of life in intentional communities.[lvi] The study concerned did not investigate whether permaculture itself has any role; however it demonstrates that maintenance or even increase of overall standards of well-being in the face of declining access to material goods can be achieved through increasing emphasis on activities other than consumption. Applied to people care, permaculture promotes the accumulation of personal and social energy in routines, which allows higher yields in all layers of activity at reduced net throughputs of money, energy and other resources.[lvii] Its contributions to a post-carbon, post-growth, academia are the topic of the final section.

Post-Growth Academic Practice

Money, as Richard Douthwaite has pointed out, is a measure of the surplus energy available to society.[lviii] Global economic contraction and instability are thus the direct consequence of peak supplies of oil and other primary energy sources.[lix] Universities' current experience of relative financial austerity – minor compared to those of many other, less complicit, sectors of society - simply reflect general declines in overall energy supplies, relative to demand. Without seeking to prescribe any specific measures, this closing section examines how a permaculture-based para-academic practice might contribute to replacing academia's rather undignified scramble to maintain its privileged position with a more constructive response that sees it taking a leading and proactive role in energy descent.

The crucial dimension is the governance and control over research processes and allocation of research resources. Set in global context, permaculture and *Transition* can be viewed as elements of broader movements to promote and maintain commons, both physical and cultural: tangible and intangible resources that are under the democratic control of their co-users.[lx] The creation of new commons, and defence of existing ones, are crucial antidotes to inaction and inappropriate action in response to climate change and other sustainability crises on the part of economic and political elites.[lxi] A viable post-carbon academia would form an active part of this movement, dedicating itself to the creation and maintenance of knowledge commons to which all are able to contribute and gain access in a radical democratisation of academic practice consistent with the earlier visions of Illich[lxii] and Friere.[lxiii] A case in point is the UK Permaculture Association's research strategy, in which a single part-time paid member of staff mobilises work by committed long-term volunteers, students on sandwich year placements from Bradford University, projects by trainee permaculture apprentices, documentation of onsite practices by permaculture practitioners and the support of professional academics towards the emergence of capacities for self-documentation and self-analysis on the part of the permaculture movement.[lxiv]

Radical para-academic action, whether along the lines described here or in any of its other myriad forms,[lxv] has a crucial role to play in bridging relationships between this emerging movement and the academic establishment. Trajectories beyond the age of growth will be varied, with elements of all four scenarios likely to co-exist for the foreseeable future. We can expect a small number of elite institutions capable of monopolising increasingly scarce resources to continue with business as usual, presumably continuing to welcome sponsorship from oil and tobacco companies, the defence industry and dubious political regimes, catering largely for the same vested interests behind current austerity agendas. Others will consolidate as green campuses along the lines of many US universities, and the likes of Plymouth University in the UK, and are likely to cultivate supportive relationships with newly-emerging democratised alternatives to conventional universities. For those who fail to achieve either of these and experience the collapse scenario, leading to their closure, these experiments may act as 'lifeboats', analogous to the role anticipated for ecovillages and other self-reliant communities, perhaps naively, in the event of wider collapse of basic production if current carbon-intensive systems are not replaced in time. If academic responses to austerity continue to be dominated by self-interested outrage at the diminished supply of crumbs off the table rather than constructive action towards alternatives, the gap this would have to fill may be vast.

More optimistically, two concepts prominent in *Transition* suggest a more engaged role, less as alternatives than as agents of transformation. Anne Wilson Schaef's characterisation of society as a whole, and its most powerful institutions, as sufferers of addiction to patriarchal, technocratic, materialist values places responsibility on all of us.[lxvi] As participants in these systems, however reluctant or critical, we are all to some degree culpable and ourselves in recovery from addiction to our personal roles. Individual and collective healing processes can not be separated; there is no us and them, just humanity as a whole seeking, for the first time, to learn how to live in a sane and mutually supportive way on a finite planet. Alastair

McIntosh, building on the liberation theology of Walter Wink, sees this as a process of constructive engagement with institutions that, corrupted by their own power, have lost sight of their true purpose, but are nonetheless capable of redemption.[lxvii]

Para-academics have crucial roles in these processes, in many different ways. One is as co-creators of the new institutions against which to compare established powers, supporting them by channelling resources and expertise. Another is by promoting responsible practice within established institutions, or through building and maintaining links with more radical organisations. Still another is as active supporters for engaged academics within universities, and supporting refugees from academia needing to undertake their own rehabilitation. The vision of resisting the spread of toxic monocultures by cultivating diverse verdant forest gardens can sustain all of these.

---

i Bookchin, M., 2005. *The Ecology of Freedom.* Oakland: AK Press.

ii Burnett, G., 2001. *Permaculture: a beginner's guide.* Westcliff-on-Sea: Spiralseed. Pp. 14.

iii McKay, G., 2011. *Radical Gardening: politics, idealism and rebellion in the garden.* London: Frances Lincoln. Pp. 48-50.

iv Hopkins, R., 2010. What Can Communities Do? In Heinberg, R. & D. Lerch (eds.) *The Post Carbon Reader: Managing the 21st Century's Sustainability Crises.* Healdsburg, CA: Watershed Media, 2010.

v Hopkins, R., 2013. *The Power of Just Doing Stuff.* Cambridge: UIT/Green Books.

vi Hopkins, R., 2011. *The Transition Companion.* Totnes: Green Books. Pp. 98-99.

vii Figures from https://www.transitionnetwork.org/initiatives (Accessed Sept 16th 2013).

viii Henfrey, T. & B. Brangwyn, 2013. *The Transition Research Primer v1.0.* Totnes: Transition Research Network. http://www.transitionresearchnetwork.org/transition-research-primer.html (Accessed Sept 16th 2013).

ix Kelly, U. & R. Kelly, 2013. Experiences of Transition Research. http://www.transitionresearchnetwork.org/experiences.html (Accessed Sept 16th 2013).

x Jackson, T., 2009. *Prosperity without Growth.* London: Earthscan. Ryan-Collins, J., A. Simms, S. Spratt & E. Neitzert, 2009. *The Great Transition.* London: New Economics Foundation. http://www.neweconomics.org/publications/entry/the-great-transition (Accessed Sept 16th 2013).

xi Jackson, T., 2006. Consuming Paradise? Towards a socio-cultural psychology of Sustainable Consumption. In Jackson, T. (ed.), *Earthscan Reader in Sustainable Consumption.* London: Earthscan. Filk, R., 2009. Consuming ourselves to death: the anthropology of consumer culture and climate change. *In* Crate, S.A. & M. Nuttall, 2009. *Anthropology and Climate Change: from encounters to actions.* Walnut Creek: Left Coast Press..

xii Chatterton, P. & L. Maxey, 2009. Introduction: whatever happened to ethics and responsibility in geography? *ACME* **8**(3): 429-439. Freedman, D., 2011. An Introduction to Education Reform and Resistance. In Bailey, M. & D. Freedman (eds.) *The Assault on Universities*. London: Pluto Press.

xiii A few among many creditable examples include Fuller, D. & R. Kitchener (eds.), 2004. *Critical Theory, Radical Praxis*. Vernon and Victoria: Praxis Press. Chatterton, P., 2008. Demand the Possible: Journeys in Changing our World as a Public Activist-Scholar. *Antipode* **40**(3):421-427. Brown, G. & J. Pickerill, 2009. Editorial: Activism and Emotional Sustainability. *Emotion, Space and Society* **2**: 1-3.

xiv Maxey, L., 2009. Dancing on a Double-edge Sword: Sustainability within University Corp. *ACME* **8**(3): 440-453.

xv Pain, R., M. Kesby & K. Askins, 2011. Geographies of Impact: Power, Participation and Potential. *Area* **43**(2): 183-188.

xvi Greenberg, D., 2013. Academia's Hidden Curriculum and Ecovillages as Campuses for Sustainability Education. In Lockyer, J. & J. R. Veteto (eds.) *Environmental Anthropology Engaging Ecotopia: Bioregionalism, Permaculture and Ecovillages.* New York and Oxford: Berghahn.

xvii Veteto, J. R. & J. Lockyer 2008. Environmental Anthropology Engaging Permaculture: Moving Theory and Practice Toward Sustainability. *Culture & Agriculture* **30**: 47–58. Henfrey, T., 2010. *Cultivating Community, Gardening Anthropology: Permaculture, Local Food and Engaged Research.* European Association of Social Anthropologists, Maynooth, Ireland, 2010. Transition Research Network 2012. *New Knowledge for Resilient Futures.* Plymouth, UK. http://www.transitionresearchnetwork.org/new-knowledge-for-resilient-futures.html. Accessed Sept 17th 2013.

xviii Whitefield, P., 2004. *The Earth Care Manual.* East Meon, Hants: Permanent Publications.

xix Turner, N.J., I.J. Davidson-Hunt and M. O'Flaherty, 2003. Living on the edge: ecological and cultural edges as sources of diversity for social-ecological resilience. *Human Ecology* **31**(3): 439-461.

xx Posey, D. A., 1998. Diachronic ecotones and anthropogenic landscapes in Amazonia: contesting the consciousness of conservation. *In* Balée, W. (ed.) *Advances in Historical Ecology.* New York: Columbia University Press.

xxi Balée, W. L., 1994. *Footprints of the Forest: Ka'apor Ethnobotany ; the historical ecology of plant utilization by an Amazonian people.* New York: Columbia University Press.

xxii Berkes, F. 2008. *Sacred ecology: traditional ecological knowledge and resource management*. 2nd edition, revised. London: Routledge. Berkes, F., J. Colding, and C. Folke, 2000. Rediscovery of traditional ecological knowledge as adaptive management. *Ecological Applications* **10**(5): 1251-1262.

xxiii Turner, N.J., I.J. Davidson-Hunt and M. O'Flaherty, 2003. Living on the edge: ecological and cultural edges as sources of diversity for social-ecological resilience. *Human Ecology* **31**(3): 439-461.

xxiv Maffi, L. (ed.), 2001. *On Biocultural Diversity: linking language, knowledge and the environment*. Washington and London: Smithsonian Institution Press.

xxv Said, E., 1978. *Orientalism*. London: Penguin. Kuper, A., 2003. The Return of the Native. *Current Anthropology* **44**(3).

xxvi Toledo, V., 2001. Biocultural diversity and local power in Mexico: Challenging globalization. *In* Maffi (ed.). Henfrey, T., forthcoming,. *Edges, Frontiers, Fringes.* Oxford/New York: Berghahn.

xxvii Morris, F.A., 2012. When Ecology Goes Feral. *NJAS - Wageningen Journal of Life Sciences* **59**: 7-9.

xxviii Examples include Haxeltine, A., & G. Seyfang, 2009. *Transitions for the People: theory and practice of 'Transition' and 'Resilience' in the UK's Transition movement.* Tyndall Centre for Climate Change Research Working Paper 134. Poland, B., M. Dooris, & R. Haluza-Delay, 2011. Securing 'supportive environments' for health in the face of ecosystem collapse: meeting the triple threat with a sociology of creative transformation. *Health Promotion International* **26**(s2): ii202-ii215. Reeves, A., M. Lemon & D. Cook, 2013. Jump-starting transition? Catalysing grassroots action on climate change. *Energy Efficiency* **6**(2): 1-18.

xxix Hopkins, R., 2010. *Localisation and resilience at the local level: the case of Transition Town Totnes (Devon, UK).* PhD thesis, Plymouth University. Mycock, A. E., 2011. *Local Food Systems in County Durham: The capacities of community initiatives and local food businesses to build a more resilient local food system.* Masters thesis, Durham University. Available at Durham E-Theses Online: http://etheses.dur.ac.uk/3304/. Ward, F., 2013. *Totnes and District Local Economic Blueprint.* Totnes: Transition Town Totnes.

xxx Hart, R., 1991. *Forest Gardening.* Totnes: Green Books. Hart, R., 1996. *Beyond the Forest Garden*. Totnes: Green Books. Crawford, M., 2010. *Creating a Forest Garden.* Totnes: Green Books

xxxi Macy, J. & C. Johnstone, 2012. *Active Hope.* Novato: New World Library.

xxxii Brown, G. & J. Pickerill, 2009. Space for Emotion in the Spaces of Activism. *Emotion, Space and Society* **2**: 24-35.

xxxiii Platten, S. & T. Henfrey 2009. Culture change and the cultural keystone concept in anthropology. *Human Ecology* **37**(4): 491-500.

xxxiv http://www.permaculture.org.uk/forestgardens. Accessed September 17th 2013. A forthcoming book on forest gardens by Tomas Remiarz, T., to be published by Permanent Publications of East Meon in Hants, will consider contrasting case studies of forest gardens from across the UK.

xxxv Giroux, H. A., 2011. The Swindle of the Corporate University. In Bailey, M. & D. Freedman (eds.) *The Assault on Universities: A Manifesto for Resistance.* London: Pluto Press.

xxxvi Freedman, D., 2011. *An Introduction to Education Reform and Resistance.* In Bailey, M. & D. Freedman (eds.) *The Assault on Universities: A Manifesto for Resistance.* London: Pluto Press.

xxxvii Maxey, L., 2009. Dancing on a Double Edged Sword: Sustainability within University Corp. *ACME* **8**(3): 440-453.

xxxviii e.g., Hart, A., E. Maddison & D. Wolff, 2005. *Community University Partnerships in Practice.* National Institute of Adult Continuing Education.

xxxix Pain, R., 2013. Impact: Striking a Blow or Walking Together? Forthcoming in *ACME.* Olson-Ramanujan, K.. Women in Permaculture. *Permaculture Activist*, Aug 2013 (also at http://seedsustainabilityconsulting.com/women-in-permaculture-article-in-permaculture-activist/). I agree with Olson-Ramanujan's basic thesis as to the importance of the hidden, 'softer', community- and wellbeing-oriented activities (that occupy the lower layers of the forest garden in the metaphor employed here, and which, despite the characterisation as 'feminine', are not the exclusive responsibility nor aptitude of women). However, my experiences in the permaculture movement in the UK, and to a lesser extent in other European countries, do not match the patterns of institutional sexism the writer describes in the US (on which lack of any direct experience makes me unqualified to comment). In the UK, for example, 14 out of 27 diploma tutors registered with the Permaculture Association are women, including 3 out of 5 senior tutors http://permaculture.org.uk/diploma/diploma-tutor-register, accessed 14th Sept 2013), and women comprise exactly half of the Association's staff and half of its trustees (http://permaculture.org.uk/permaculture-association/staff-trustees-and-legal, accessed 14th Sept 2013). This being said, there is a huge gender discrepancy in the authorship of well-known books on Permaculture, almost all of which are written by men: notable exceptions include Reny Mia Slay's often under-recognised contributions to the books of permaculture's originator Bill Mollison. It is my view that, regardless of the extent to which permaculture in the US, as Olson-Ramanujan argues, reproduces the gender inequalities prevalent in wider society, the UK permaculture movement has developed, and enacts, its own alternatives and through these actively challenges structural discrimination.

xl e.g. Graeber, D., 2009. *Direct Action. An ethnography.* Edinburgh: AK Press.

xli Gillan, K. & J. Pickerill, 2012. The Difficult and Hopeful Ethics of Research on, and with, Social Movements. *Social Movement Studies* **11**(2): 133-143.

xlii Alexander, C., 1979. *The Timeless Way of Building.* New York: Oxford University Press. For examples of

vernacular architecture see Rudofsky, B., 1964. *Architecture Without Architects.* New York: Museum of Modern Art; Oliver, P., 2003. *Dwellings: the vernacular house worldwide*. London: Phaidon Press.

xliii Alexander, C., M. Silverstein, S. Angel, S. Ishikawa & D. Abrams, 1975. *The Oregon Experiment.* New York: Oxford University Press. Alexander, C., S. Ishikawa, Sarah, & M. Silverstein, 1977. *A Pattern Language.* New York: Oxford University Press.

xliv www.patterns.transitionresearchnetwork.org

xlv Armstrong, A., S. Banks & T. Henfrey, 2011. *Co-inquiry and related participatory and action approaches to community-based research.* Durham University: Centre for Social Justice and Community Action.

xlvi Jacke, D. & E. Toensmeier, 2005. *Edible Forest Gardens, Volume 2: ecological design and practice for temperate climate permaculture*. White River Junction: Chelsea Green. Pp. 63-140.

xlvii http://transitionculture.org/2010/06/04/rethinking-transition-as-a-pattern-language-an-introduction/. Accessed December 13th 2013.

xlviii e.g. Schuler, D., 2008. *Liberating Voices: a pattern language for communication revolution.* London: MIT Press (and http://publicsphereproject.org/); http://www.reliableprosperity.net/; http://groupworksdeck.org/.

xlix Alexander, C., 2012. *The Battle for the Life and Beauty of the Earth.* New York: Oxford University Press.

l Hardt, M. & A. Negri, 2004. *Empire*. London: Harvard University Press. Pp. 35-36.

li Pain, R., M. Kesby & K. Askins, 2011. Geographies of Impact: Power, Participation and Potential. *Area* **43**(2): 183-188.

lii Boltanski, L., & E. Chiapello, 2005. *The New Spirit of Capitalism.* London: Verso.

liii Holmgren, D., 2009. *Future Scenarios.* Totnes: Green Books.

liv Unruh, G., 2000. Understanding carbon lock-in. *Energy Policy* **28**(12): 817-830.

lv Odum, H. T. & E. T. Odum, 2001. *A Prosperous Way Down.* Boulder: University of Colorado Press.

lvi Muldera, K., R. Costanzaa & J. Erickson, 2006. The contribution of built, human, social and natural capital to quality of life in intentional and unintentional communities. *Ecological Economics* **59**: 13-23.

lvii MacNamara, L., 2012. *People and Permaculture.* East Meon: Permanent Publications.

lviii Douthwaite, R., 2011. The Supply of Money in an Energy Scarce World. In *Fleeing Vesuvius: overcoming the risks of economic and environmental collapse* (eds.) R. Douthwaite and G. Fallon. Gabriola Island: New Society Publishers. http://fleeingvesuvius.org/2011/08/04/the-supply-of-money-in-an-energy-scarce-world/

lix Heinberg, R., 2011. *The End of Growth.* Forest Row: Clairview. Morgan, T., 2013. *A Perfect Storm*. London: Tullett Prebon. www.tullettprebon.com/Documents/strategyinsights/TPSI_009_Perfect_Storm_009.pdf

lx Henfrey, T. & J. Kenrick, 2014. Climate, Commons and Hope: the Transition movement in global perspective. In Buxton, N. (ed.) *Cashing in on Catastrophe.* Amsterdam: Transnational Institute.

lxi Kenrick, J., 2012. The Climate and the Commons. In Davey, B. (ed.) Sharing for Survival. Cloughjordan: FEASTA. http://www.sharingforsurvival.org/index.php/chapter-2-the-climate-and-the-commons/. Accessed Dec 13th 2013.

lxii Illich, I., 1973 [1971]. *Deschooling Society.* London: Penguin.

lxiii Friere, P., 1996 [1970]. *Pedagogy of the Oppressed.* London: Penguin.

lxiv Sears, E., C. Warburton-Brown, T. Remiarz & R. S. Ferguson, 2013. *A social learning organisation evolves a research capability in order to study itself.* Poster presentation at the Tyndall Centre Radical Emissions Reduction Conference, London, UK, 10th – 11th December 2013.

lxv For examples see http://www.visualculturenow.org/the-militant-research-handbook/. Accessed Dec 13th 2013.

lxvi Wilson Schaef, A., 1987. *When Society Becomes an Addict.* San Fransisco: Harper Row.

lxvii McIntosh, A., 2001. *Soil and Soul. People versus corporate power.* London: Aurum Press.