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## **Natural resources, valorisation and co-production in the dynamics of rural-urban relations**

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### **Rethinking urban-rural relations as relations of resource valorisation and resistance**

My paper arises in the context of thinking about how to define the rural, and how to understand relations between rural and urban in contemporary societies. It brings forward the concept of ‘natural resource’ in this context. Rural-urban relations and differences have puzzled not just rural sociology but sociology in general since its early days of seeking to explain the emergence of ‘modernity’. Historically, the dominant approach has seen rural and urban as differentiated primarily by their different cultures, following on the tradition started by Toennies and Simmel, although this has been elaborated and expanded by attention to differences in the use of space (associating the countryside with particular sorts of landscapes, settlement patterns, mobility and migration processes etc.) and to differences in social organisation (family forms of enterprise, community-type relations and so on). This type of approach does not offer much explanation of how rural and urban are connected, except perhaps in terms of temporal lags or spatial gaps. A contrasting approach emphasises differences in terms of economy: rural economies are predominantly ‘extractive’ economies, where livelihoods are based on the ‘mining’ of raw materials from nature. These raw materials are then expropriated for use in urban-industrial economies which create value by processing raw

materials into commodities for intermediate or end consumption (see e.g. Bunker 1985, 2005, 2007; Bunker and Ciccantell 2005). A recent paper on 'Rural Economies' in the Sage Handbook of Rural Studies (Marini and Mooney 2006) adds that both economies also provide distinctive types of service: rural economies provide primarily 'environmental services' (which can be variously understood), urban-industrial ones provide services associated more with 'knowledge economy' such as scientific knowledge and technological innovation, legal and regulatory norms and institutions, commercial and management skills etc.

In this approach, rural and urban economies are connected primarily through the circulation of material resources from one to the other. From a world system theory perspective, the organisation of capitalism around extraction and processing of material from nature leads to a pattern of development which is uneven across space, in which rural areas are generally subordinated to urban and metropolitan development dynamics; this relationship is largely constructed around the processes through which natural materials are transformed into 'resources'. The spatio-social 'history of things' (Appadurai 1986) as they pass from the moment of extraction from nature through to their transformation into usable and saleable consumption goods is what explains the relations of dependency, subsumption and exploitation which link rural and urban places within a global capitalist economy and the concentration of poverty and powerlessness in rural populations. It is a 'history' which connects two different forms of production, each with distinctive labour processes and forces and relations of production, with rural labour processes seen as characterised by greater reliance on use of physical labour power and less elaborated forces of production, producing for more monopolistically organised market situations, while urban labour processes rely more on knowledge, developed technologies, a more elaborated class and skills structure, and produce for diversified markets. Two different relations of labour to nature are involved.

To characterise rural distinctiveness in terms of an extractive relation to nature may seem limited when we think of the diverse and multiple ways in which, particularly in developed societies, rural areas have been transformed in recent decades. European rural

places have become increasingly economically differentiated, for example in the extent to which they have ‘de-agriculturalised’ and/or become sites for counter-urbanisation, tourism, new commercial enterprises and so on. Moreover, with the global rise of sustainability concerns, it becomes more difficult to treat relations between economy and nature within the rural as purely ‘extractive’: rural areas have come to be recognised as a site of valued natural resources (for both economic and conservation purposes), and the content of these ‘resources’ has expanded to include not just raw materials for industrial processing, but also a range of public consumption goods from clean air to carbon sinks to recreational spaces and opportunities for aesthetic experiences. The contemporary ‘multifunctional’ countryside has also become a location for social experiments with new and ‘alternative’ forms of living, work and production, social and environmental governance. This on-going ‘reactivation’ of the countryside is, however, closely tied to global concern over sustaining and using the material resource base on which we depend both as biological bodies and as workers within economies: for example, renewed concerns about food and energy shortages have led to re-evaluations of the potentialities of rural places and natures to provide resources for new ways to meet consumption needs in energy and food. I do not want to suggest here that the ‘extractive-productive’ distinction captures everything that we might want to say about how rural economies operate today and about the form of rural-urban relations. But I do argue that it captures something ‘essential’, in the sense that without a recognition of the close interconnections between ‘the rural’ and ‘natural resources’, we can hardly use the notion of ‘rural’ at all.

### **Theorising ‘natural resources’**

If rural-urban relations, and the continuing distinctiveness of the rural, are essentially linked to relations around natural resources, what is a ‘natural resource’, and how can we theoretically elaborate this concept? The concept seems rather under-discussed in both environmental and rural sociology, where one might expect it to be a central issue. Environmental politics can be seen as one major force in changing societal ideas of what constitutes a ‘resource’ from nature. Climate change politics, for example, have brought about a revaluing of carbon emissions as commodities which have exchange value.

Biodiversity is often spoken about in terms of the ‘services’ it provides to humans, and calls to conserve biodiversity often appeal to the longterm and as yet unknown benefits which use of this resource could bring, through medical or food crop exploitations for example. Rural sociology also has often sought to explain the mutual shaping and dependency of local natures and local societies, and has drawn heavily on documentation and analysis of natural resources in doing that. In neither case, however, has there been much attempt to theorise ‘natural resource’ explicitly or to explore its meaning.

One discussion of sociology and natural resources comes from a 2001 paper by Buttel, which gave rise to a subsequent debate with Field et al, and Rosa and Machlis, in *Society and Natural Resources* (2002), and a reply by Buttel in *ibid*, 18, 2004. In his 2001 paper, Buttel set out to distinguish between a ‘sociology of natural resources’ and ‘environmental sociology’. However, his discussion of natural resources sociology is constrained, I suggest, by two things: the *criteria* he uses to draw the distinction (mainly external rather than internal, addressing things like the social or social-organisational origins of each, their characteristic focus, their scale of analysis, and their understanding of ‘sustainability’), and his desire to *correct* natural resource sociology so as to align it better with environmental sociology. Buttel suggests that sociology of natural resources originates in practice-oriented rural sociology and natural resource management, focuses on local ecosystems or landscapes, characteristically conducts analysis at the local, community or non-metropolitan level, and defines ‘sustainability’ in terms of longterm natural resource yields, social equity in allocation and use of resources, and the reduction of social conflict over natural resources. In contrast, environmental sociology originates in academic social theory, focuses on ‘the environment’, uses nation state or global levels of analysis, and understands ‘sustainability’ in terms of reduction of aggregate levels of pollution and raw materials usage. These contrasts are also what draw most attention from his respondents and critics. As mentioned, Buttel’s goal is essentially to correct rather than to develop the sociology of natural resources, by integrating it more deeply with ‘mainstream’ social theorising on globalisation, risk and the role of the nation state. Neither he nor his respondents produce any analysis of the concept of ‘natural resources’ itself.

In looking for some theoretical development of the concept, we might go back to Stephen Bunker who is generally credited with being the first World System Theorist to have integrated ecology into world system analysis in a systematic way. Central to Bunker's work is the idea that the physical characteristics of natural materials play a critical role in shaping the social organisation of their extraction and industrial conversion. 'Nature', in other words, plays an agential role in shaping 'society'; yet in much of his work, he still treats 'natural resource' as an unproblematic concept, as denoting a reality which is objectively identifiable from economic indicators and statistics of economic activity. However a late (posthumously published) paper (Bunker 2007) offers some interesting hints as to its theorisation. Here Bunker argues that explaining how value in extractive economies is systematically underpaid, and how this underpayment is realised as profits by the industrial cores to which their raw materials are transferred, is not possible if we only make use of a Marxist labour theory of value or assume that value is always and only the creation of human labour. We need to complement this with a theory of 'natural values'. What this means, in effect, is that natural resources should be analysed as a type of 'use value', the production of which 'itself occurs in nature, not through labour' (2007: 252). 'To understand the world economy and its future, we need to explain systematically not just the production of exchange values, but also the production of use-values. This requires perceiving nature not as object, subject, or plastic source of raw materials and natural forces, but as process and system of production that follows its own laws and forces society to do the same, even though social intentionality and directed co-operation create society's distinct productive dynamic' (2007: 253).

This idea of 'nature' as an autonomous system of production and producer of value is very interesting but also quite puzzling. 'Natural values' might be understood as 'natural capital', which often translates into 'ecosystem services' and is often given a monetary value – but that assumes the sort of anthropocentric and utilitarian perspective on nature which Bunker himself critiques in arguing that nature is a production system *sui generis*. On one side it is important that the agential role of nature as a collaborator with society in the production of valuable resources is emphasised, on the other this approach seems

to 'naturalise' value. It remains difficult to see how we could identify 'natural values' from an analysis of natural systems themselves, since a resource is always 'valuable' from some particular (human or social) standpoint or goal.

Theorising 'natural resources' then brings us back to a fundamental problem for environmental sociology in general: the relationship between 'nature' and 'society', the social and the natural. A 'resource' is not something which is given by nature; recognition that a natural object or process is a 'resource' (meets our needs, is desirable, usable, profitable) involves the application of human knowledge and interests. At the same time, it cannot be treated as a purely social construction, which would mean ignoring the agency of nature in its production. While we clearly cannot treat 'rural' and 'natural' (or 'urban' and 'cultural/social') as identical, we could perhaps make use of theories of urban-rural relations as a way of advancing our understanding of society-nature relations.

Natural resources require to be theorised as both symbolic and material entities. As a starting point, I suggest thinking of them as the outcomes of processes of constructing or bestowing value on materials from nature, but taking into account at the same time nature's capacity to produce materials which are desirable to us. Recognising that a 'resource' is both a product of nature and something perceived or constructed as useful for humans means that we need to address how perceptions of utility may change over time and of how this may contribute to sociological understanding of rural social change. Thus a useful starting point seems to be to draw on and elaborate the concept of 'valorisation'. Valorisation draws attention to the historicity of 'resources' and 'resource use' and the fact that what is a 'value' at one point of time or in one context may not be so in another; 'value' becomes something which is constructed within and through relations within a network of actors, and 'a resource' is whatever is valorised, appropriated, used, or exhausted, within such networks. Thus the next section of the paper addresses the concept of 'valorisation'. I draw on some recent developments in rural sociology which address natural resources through a concept of 'valorisation' or 'revalorisation' as a starting point for thinking about an environmentally informed

sociology of rural-urban relations. The eventual goal would be to construct a broad comparative framework to analyse the transformation of rural areas in late and increasing ecologically constrained capitalism.

### **The concept of ‘valorisation’ in rural sociology**

The term ‘valorisation’ currently has a wide variety of meanings, and can be used to refer to either a material or a non-material process. In EU research-centred discourse, for example, it means effectively to ‘activate’ a research project in a way which adds value to the research, particularly within policy and practice communities. Thus valorising one’s research means strengthening its impact and transferring its findings to potential end-users through systematic dissemination and exploitation. Natural science research projects themselves, however, offer a different meaning for the term. For example, an EU-funded project on ‘the valorisation of leicithins’ in rapeseed or sunflower varieties or plants (see [www.biomatnet.org/secure/Fair/S491.htm](http://www.biomatnet.org/secure/Fair/S491.htm)) is about enhancing the capacity of these plants to secrete proteins and to produce biomass; the research is represented as a way of making European seed oil leicithins more useful to the ‘fermentation and cosmetic industries’, improving the technologies for their exploitation and developing new products etc.

The concept of ‘valorisation’ also of course has a long history within political economy (see e.g. Foster 2000; Goodman 2001; Dickens 2004), where it has been variously used to refer to processes of giving meaning to elements of nature (signification), taking nature into human use (realisation, actualisation), and making it into an object of economic or monetary value. ‘Valorisation’ does not only bring natural materials into the labour process to be worked on and substantially altered by human activity; it also expresses and reflects cultural meaning processes; and its realisation in turn significantly changes human actors and social relations.

Much recent work in rural sociology explores the economic, social and sustainable impacts of ‘revalorisation’ of rural resources on rural society and nature. These processes are central, for example, to the ‘New Paradigm’ Rural Development approach

of van der Ploeg and colleagues (van der Ploeg et al 2000; van der Ploeg and Renting 2004; van der Ploeg 2008), in which the identification of previously neglected or marginalised local natural resources is central to processes of ‘broadening’ and ‘deepening’ rural development. Similarly, in Marsden (2003), sustainable rural development is represented as movement towards the re-grounding of agricultural production in agro-ecological practices, which requires a re-valorisation of ecological or natural resources. Revalorisation, as a process of claiming ‘quality’, is also represented as an important facet of the construction of ‘alternative worlds of food’ (Morgan et al 2006). New economic opportunities based on natural resources, which are understood as afforded to rural people by increasing urbanisation, globalisation and the consumer turn to ‘quality’, have been discussed in particular in the context of the emergence in rural areas of new forms of food production and marketing (local and organic foods, food chains which reconnect consumers and producers through Farmers’ Markets or box delivery systems, etc.), which link changes in the social construction of food ‘quality’ to a ‘revalorisation’ of the inputs (local varieties of vegetable or animal, artisanal labour etc) used (see e.g. Brunori and Rossi 2000; Fonte 2001; Kneafsey et al 2001). Such conceptions of (re)valorisation include both material and non-material processes of change: new or neglected resources in nature (such as a particular breed of pig living in Portuguese forests) are ‘discovered’ to have value, new technologies for processing the yield from these resources are developed to meet standardised European hygiene rules, new marketing strategies are adopted to enable representation of the product as in some way ‘traditional’ or ‘local’ to the area, hence of specific ‘quality’.

While this is a useful starting point from which to think further about ‘natural resources’, it has a number of limitations. There has been an over-focus on agriculture and on raw materials for food, to the exclusion of other rural natural resources, which limits the possibilities for developing a broader perspective on the dynamics of contemporary change in rural-urban relations. And the preoccupation in much of this literature with ‘alternative’ forms of production gives rise to a rather one-sided account of valorisation as primarily the initiative of rural populations themselves. While some studies of the rise of ‘local food’ assume that revalorisation is carried out by market actors who identify

luxury consumption niches as a basis for new profits, in many others it is represented as an accomplishment of rural actors, in their attempts to secure local livelihoods, or (more rarely) of social movements like the organic or Slow Food movements. My own interest here is in trying to develop a broader ‘sociology of resource use’ to include and to compare the multiple ways in which rural resources are being reactivated today - not just in relation to food but also clothing, forestry, biodiversity and genetic resources, material landscapes, new energy resources found in rural locations, among others. Such an approach needs to go more deeply into researching the agents of revalorisation: who is strategically involved in bringing it about, through what networks and relationships, with what intentions? Both economic entrepreneurs and cultural mediators (advertising agencies, fashionable food writers and personality chefs etc) participate in the construction of ‘added value’ for ‘local foods’ (Dixon 2002). Chemists and food scientists are significant actors in revalorising local food and wine products. Scientists and environmentalists also play significant, and significantly different, roles in revalorising natural resources and the places in which they are located.

In Ireland, for example, wool, a raw material which has undergone a long process of devalorisation as a resource for clothing and textiles, has recently begun to be revalorised as an input into ecological house building. Changing valorisations of this rural raw material have been accomplished by a wide range of external actors and contexts, from the fashion industry to sustainability activists to scientists and engineers to climate change entrepreneurs seeking to capitalise on new concerns about energy use in heating houses. We might add that changes in the valorisation of wool can be seen to impact materially on the sheep, transforming it – in the case of de-valorisation of wool - from an animal with multiple and pluriactive characteristics into purely a meat animal. Other cases might include minerals and gases; wind, as a renewable energy source (the valorisation of windy sites and terrains as locations for wind farming represents a major change in the fortunes of many marginal rural areas previously seen as economic and cultural wastelands); genetic materials which may become valorised and privatised as resources for improving animal or plant breeding or for input into biotechnology in processes of genetic modification; water (the valorisation of bottled water, for example,

which brings freshwater springs into new commodification processes, through which the realisation of economic value is achieved primarily through packaging, branding and other forms of market differentiation); and even landscape and scenery - valorisation of 'place' in terms of natural amenities as a resource for the development of rural tourism and/or as an attraction for counter-urbanising populations including artists, retired people, middle class commuters or the self-employed. and rural-urban relations, are all central to such an approach.

### **'Natural resources' or 'new property objects'?**

Processes of creating value clearly impact on ownership of and rights of access to resources; they direct attention to questions of how value creation processes are organised socially and economically and who retains added value or how it is distributed among the actors involved. Analysis of the changing forms of material property and resource use which result from revalorisation processes, and the 'ecological distribution conflicts' (Martinez-Alier 2002) which arise in processes of natural resource revalorisation in rural areas, must be fundamental to a 'sociology of resource use'. A significant body of work on revalorisation of the countryside, which focuses directly on changes in property relations, has been developed in the past few years by an international group of rural sociologists (see Laschewski and Penker 2009; Turner and Wiber 2009). They approach the explanation of processes of rural change as a process of 'revalorisation of rural property objects' (Laschewski and Penker 2009: 2). The manifold re-activations of the contemporary countryside 'trigger re-valorisation processes of and property negotiations about (new) valuables' (2009: 7). Some new property objects become of increasing interest, while others which were previously important are so no longer. They argue that this places rural property rights at the centre of current rural dynamics and conflicts.

Similar to my own argument above, these theorists emphasise the role of non-rural and non-local actors in rural revalorisation processes: 'a major impulse for revalorisation processes appears to derive from the interest of non-rural actors in gaining control over rural resources' (Laschewski and Penker 2009: 8), which in turn sets off counter-

movements among rural actors to maintain their own control over these resources. Turner and Wiber (2009), for whom this is a central issue, offer a very interesting discussion of how the ‘translocal-local interplay’ between rural inhabitants and the international ecological movement carries new notions of ‘nature’ and new ‘ruralist agendas’ into the global arena and into national state arenas, and thus brings rural property issues back into view in rural sociology research.

Despite the extensive overlap and agreement between the way in which this group of authors are approaching issues of rural change as a process of ‘revalorisation’ of rural resources, and my own approach here, I question whether we should effectively replace the concept of ‘natural resources’ with that of ‘property objects’. ‘Property objects’ are understood quite broadly in their approach, as ‘bundles of rights’ – to make use of a resource, or a yield from a resource, or the right to change or transfer a resource – which are established through ‘a social relationship between actors with regard to a valuable property object’ (Laschewski and Penker 2009: 4). Such rights are not established only by formal law, but also by local social practices and cultural institutions which may resist or negotiate the imposition of more formal legal understandings of property rights in particular settings. In this way, global pressures towards standardisation, in legal as well as other arenas, paradoxically lead to greater diversity and pluralism at the local rural level (Turner and Wiber 2009). But there is a danger here of treating property objects as social constructions, divorced from ecological processes which themselves also vary significantly between different rural areas, or, in the words of Laschewski and Penker themselves (p. 6), of treating ‘biophysical environmental changes’ as ‘exogenous’ to revalorisation processes in rural settings.

There are a number of issues here I want to draw brief attention to. First, should ‘property rights’ be prioritised analytically over ‘natural resource relations’? Control over resource use is not shaped solely by legal or quasi-legal rights but mediated by other conditions which may be equally or more important, such as access to capital and to labour. A Marxist perspective would see property rights as surface phenomena which conceal the really important relations lying below the surface, which are economic

relations. While it seems unlikely that we might find instances of struggle around revalorisation which do not include a struggle over property rights, property struggles may not be as central to capitalism today as in the past. Contemporary capitalism, which is increasingly a capitalism of ‘projects’ (Boltanski 2005) frequently does not seek to own resources but prefers to enter into contractual agreements for access to them (such as renting). The primary aim is to achieve control over resources, which may be accomplished more easily and profitably in certain circumstances by entering into term agreements about their use; an example is the exploitation by energy multinationals such as Shell of off-shore gases in Ireland. Such cases suggest that the real issue is power, especially but not exclusively economic power, rather than property rights.

Laschewski and Penker emphasise that ‘property objects’ need not be material – they can include for example, land or mineral resources, animal or plant genes etc on one hand and non-material’ or ‘intangible’ objects like quality food labels (organic, fair trade, designations of geographical origin etc) or patents and other forms of intellectual property rights on the other. They suggest that the new rural property objects in which interest is strongest are likely to be increasingly ‘immaterial’, and that this reveals how rural societies are part of and illustrative of a general shift towards post-industrial, ‘knowledge’ societies. The ‘post-industrial immaterialisation’ thesis brings to the forefront the important role played in valorisation processes by knowledge. It suggests that the rural-urban distinction with which I started this paper - treating rural economies as extractive and urban industrial ones as productive, or processing – was a product of the industrial society stage and is no longer relevant. Globalisation, including globalisation of property rights, is eroding the differences between them. But we still need to ask, I suggest, what counts as ‘knowledge’ in the ‘knowledge society’, where it is produced, how it is circulated, and how it is entangled with power over ‘things’.

Local knowledge, as the knowledge generated out of rural labour processes situated in specific ecological contexts, has itself been ‘revalorised’ in recent years in a number of ways: not only as a resource for producing new ‘quality’ foods, but also, for example, as a resource for environmental conservation in the writings of the new ‘public ecologists’

(Cundill et al 2005; Berkes et al 2003) and of some sociologists of science (Jasanoff and Martello 2004; Leach et al 2005). The processes and networks through which natural resources are valorised produce distributional outcomes not just economically but also culturally and in terms of knowledge itself as a valued resource, sometimes leading to conflicts and sometimes to a mutual learning and elaboration process (Bruckmeier and Tovey 2008). Yet much natural resource revalorisation, when it does not exploit and expropriate rural local knowledges, appears to marginalise and repress them (van der Ploeg 2008). If what count as 'knowledge' and useful 'knowledge services' are still concentrated in the (urban) processing sphere, and the extractive sphere remains largely the domain of rural actors who are not seen as possessing 'knowledge', then perhaps rather little has changed for the latter?

Treating 'property' as a 'bundle of rights' and 'obligations' of the property owner tends to undermine the *relational* aspect of property objects, or else encourages use of an analytic framework in which the key 'relation' is between ideological or ideational movements and forces impinging from the outside (global, national, 'translocal') and the rural actors themselves. Underemphasising the material relations between new owners of property rights and those subjected to the exercise of these rights with the introduction of economic revalorisations of rural natural resources encourages the conclusion that rural areas are undergoing a post-industrial transition to immaterial value.

Finally, I suggest, this approach tends to take too little interest in the process of '(re)valorisation' itself. Laschewski and Penker argue that what they are really interested in getting at, through an analysis of changing rural property relations, is the revalorisation process itself, which they describe as 'a dynamic, more or less conflictual negotiation process' (2009: 7). But the negotiation processes which most of the authors in their edited special issue discuss are negotiations about property rights (particularly rights to use a resource or the yield from it): the question of how something becomes recognised as 'valuable' in the first place, and how that translates into new forms of action towards it, drops out of sight. In effect, 'natural resource' again becomes a taken for granted category.

### **Returning to the idea of ‘valorisation’**

How does something ‘acquire value’, and who is involved in that process? The use of the term ‘(re)valorisation’ within rural sociology seems quite loose; it seems to mean little more than simply re-recognising the value of, or ‘adding value’, to ‘things’ whether material or symbolic. Sociological theories of valorisation have been broadly categorised as resting on either a ‘labour theory of value’ or a ‘knowledge theory of value’ (Allen 1992). The labour theory of value says that it is work (by humans, on natural resources) which creates ‘value’ (that is, something which is useful to human reproduction and to society), but it is the capitalist system which creates ‘valorisation’ when it organises the labour process in such a way as to expand the value of capital. Marx’s understanding of ‘value’ and ‘valorisation’ is notoriously difficult, but it seems to rest on a distinction between ‘the creation of (use) value’ and ‘valorisation’, where the latter is about increasing the value of the capital brought into the labour process by the capitalist. Of course, ‘labour power’ includes knowledge and skills as well as physical energy, thus Marx did not rule out the possibility of future stages of capitalism in which it is knowledge rather than physical labour in production which becomes the key source of value. But he would disagree deeply with those who (following e.g. Daniel Bell) equate ‘post-industrialism’ with the rise of a ‘knowledge society’ which is assumed to mean the end of contradictions, class conflict and struggle. These post-industrial theorists appear to address ‘value-adding’ but to ignore ‘valorisation’ as a key continuing dimension of struggle in late capitalist society.

‘Knowledge theories of value’ however are not restricted to ‘knowledge society’ theorists, but could include the work of writers like Bourdieu, who suggests that the ‘value’ of an object depends on its being placed within a particular framework of interpretation. This means that we need to investigate the activities of those who are able to dominate interpretive work within a given field - for example the field of art, in which the creation of valuable art objects is the work of intellectuals, museum professionals, art collectors, critics and dealers (see Bourdieu 1993). In this account, ‘valorisation’ and ‘adding value’ can again be differentiated: interpretive work ‘adds value’ to the object,

but this both relies on and contributes to the valorisation of system of interpretation, or ‘symbolic capital’, of the interpreter or intellectual. Thus Bourdieu also calls our attention to how contemporary society is organised around a process of struggle over the expansion of capital, and around relations of domination and subordination which spring from the differential capacities of different social groups to control what counts as valuable, albeit this time at a symbolic rather than material level.

### **Valorisation, adding value, and the ‘co-production’ of natural resources**

This discussion has taken us rather far from my starting point, to try to develop an account of rural-urban relations based around relations to natural resources. However what I want to conclude from it is that a ‘natural resource’ is something which has been given value because doing so expands the material and/or symbolic capital, and hence the capacity to control, of those who are doing the ‘value adding’. While research on rural change involves examining the transformations in meaning of rural raw materials and products as they pass through the hands of different actors and actor-networks who identify them differentially in terms of their value as a ‘resource’ to be exploited, the underlying issue must always be how this ‘value adding’ expands the power of specific – and I am suggesting here, largely non-rural - actors. ‘Natural resource’ then has to be seen as a *relational* concept and investigated through an analysis of relations within networks of actors who try to appropriate, use or exhaust material and ecological ‘things’ with a view to valorising different capitals.

What then becomes of the idea of ‘nature’ as a source of value in itself? Environmental sociology has historically struggled with the problem of integrating natural processes and biophysical events into a theoretical framework historically dominated by explanations in terms of the social (Dunlap et al, eds, 2002). More recently, however, it has been struggling to come to terms with the rise of a variety of types of socio-ecological system theorising which share the explicit aim of reintegrating social and natural processes into one encompassing explanatory framework. We might refer here to, for example, the ‘life science’ or ‘human ecosystem’ approach of Machlis (see Machlis et al 1999); analyses of resilience and complexity within socio-ecological systems by social ecologists (see

e.g. Fikret Berkes et al 2003); Warren's (2005) extension of Hierarchy Theory from ecology to society; the launch by NASA of 'Earth System Science' as a holistic meta-discipline embracing all processes in nature and society as one interlinked system (Schnellhuber et al 2005; Lovbrand et al 2008), and the 'socioecological regime' theory developed by the Austrian School of ecological economists (see e.g. Fischer-Kowalski and Haberl 2007), in which hunter-gatherer, agrarian, and industrial regimes or modes of production are distinguished by their modes of organising energy and material flows ('societal metabolism') and of 'colonising' parts of nature to make them more useful for human and societal needs.

Such approaches offer exciting possibilities for co-researching nature and society. But they are all open to a similar criticism: that in seeking to present an analysis of a 'coupled' human/social and ecological system they end up underplaying agency, power and meaning - in effect, reducing society to a 'natural kind'. An alternative, which might escape this criticism, is Actor-Network Theory (Latour 1993, 1998). Actor Network Theory both enables us to treat natural resources as socio-natural 'hybrids', and recognises the relational nature of the hybrid entities named as 'natural resources' in any given context. Its advantage is that it does not 'naturalise' either value or agency in the form of complex systems theorising. However, this comes at other costs (see Jones 2006, Gellert 2005, Risan 2005): equalising non-human actants and machines, downplaying subjectivity as a trans-species quality, and inadequately addressing power as a critical element in the explanation of environmental change.

Nevertheless some form of network theory seems to be needed to address the relational and hybrid character of natural resources. Processes of resource valorisation bring together constellations of actors who bridge rural-urban boundaries and use new knowledges; they create new relations among these actors and between them and natural or material objects, and can lead to transformative outcomes for rural natures and rural societies. Thus we can ask how different agents of and processes for revalorisation and reactivation of rural resources differentially affect rural societies and natures: what kinds of 'rurality' are produced by the different networks of relations which link rural resources

to business and scientific interests, societal concerns and regulatory/governance demands? What new kinds of rural-urban interconnection are produced out of such networks?

My own preference at this point is to try to connect a network approach with the concept of ‘co-production’ (Irwin 2001; van der Ploeg 2008) of society and nature. Building on Marx’s analysis of the way capitalism takes hold of and reshapes social and natural relations simultaneously (Foster 1999; Dickens 2004), ‘co-production’ seeks to capture the idea that production forms do not only bring alterations to the natural materials being valorised; they also significantly change human actors. In relation to agriculture, for example, Ploeg (2008: 2) argues that peasant and corporate forms of food production should not be differentiated just by their different scales of production: they represent different ways in which the social and material are co-patterned, literally producing different cows, fields, landscapes, farming systems, rural cultures and societies. More generally, different actor-constellations which become engaged in revalorising rural resources are likely to co-produce rural humans and rural nature in different ways. The sheep produced for wool is a different beast from that produced for spring lamb, and the farmer is differently co-produced as a skilled and knowledgeable actor; sheep and farmer, local landscapes, culture and society, and rural-urban relations all undergo changes when wool is valorised as an insulation material for buildings rather than as a fabric for clothing or a costly nuisance accompanying meat production.

‘Co-production’ does not necessarily mean ‘equality in production’: human interest and ingenuity are what define the sheep as a wool-animal or a meat-animal. Yet it is the nature of the sheep to grow wool as well as flesh. Knowledge may be ‘immaterial’ yet it inevitably works on and is applied to the materials supplied by nature. The concept of co-production provides an alternative way of thinking about society-nature relations to that most often found in natural scientific analyses which speak of human economic activities as ‘drivers’ of ecological change, thus situating the human realm of activity as external to a largely passive nature. I argue that it can also offer a novel way of thinking about changing rural-urban relations, or more generally, about the new positioning of the

rural in a global society faced by increasingly difficult questions over sustainability, growth and development.

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