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THEORIZING SOCIAL CHANGE

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We outline primary features of a theoretical perspective on processes of social change in human systems that deals with broadly defined kinds of process, the nature of variants that are expressed and consolidate as change occurs, and, with specific reference to agency, the ways in which intentional actors are implicated in the changes that befall them. Our aim is to contribute to a general theory of process that is not prejudiced by the possible misrepresentation of outcomes arising in particular contexts (e.g. modernity), or the contexts themselves, as being causal processes. We direct attention to four problems of a methodological and ethical nature that may arise when analysts strive for generality.

In this paper we outline our theoretical position with respect to social change (or social evolution) in human societies.¹ Our interest is with processes entailed in change rather than with the particular configurations of products that result from those processes. We introduce our account by directing attention to primary approaches to change – as process – in the anthropological literature, briefly comparing these, where relevant, to those of evolutionary biologists. The anthropological approaches, we argue, are either flawed or partial. An adequate theorisation of social change must address not only the kinds of process entailed, but also 'units' of change and the potential for humans to act as 'agents' of change. We thus proceed to address each of these themes in turn, as the basis for developing a more comprehensive account. That account is illustrated by explicit reference to our own long-term research among peoples of the Strickland-Bosavi region of southwestern Papua New Guinea (Dwyer 1990; Dwyer & Minnegal 1999, 2007; Minnegal & Dwyer 1997, 1999, 2001, 2007). We note, however, that where our earlier ethnographic reports have dealt with processes of change each has emphasized a single aspect and, thus, taken alone also qualifies as partial. At the close of the paper we identify four problems that are not fully resolved by our account of change. Our particular aim is to encourage more considered attention to processes of change by those anthropologists who undertake or have undertaken long-term ethnographic studies.

Anthropological Approaches to Change

In the 1960s the developmental biologist C. H. Waddington suggested that evolution comprises a four-fold system. He wrote:

‘Biological evolution... is carried out by an “evolutionary system” which involves four major factors...: a genetic system, which engenders new variation by the process of mutation and transmits it by chromosomal genes; an epigenetic system, which translates the information in the fertilized egg and that which impinges on it from the environment into the character of the reproducing adult; an exploitative system, by which an animal chooses and modifies the environment to which it will submit itself; and a system of natural selective pressures, originating from the environment and operating on the combined result of the other three systems’ (1960:94-6; see also 1969).

Waddington’s schema provides a useful frame for positioning different theoretical approaches to processes of change. Within anthropology, evolutionary ecologists and evolutionary psychologists, like neoDarwinians in biology, depict change primarily in terms of an interplay between natural selection and either genetic mutations or their meme-like analogues (e.g. Buss 2004, Cronk *et al.* 2000) – the first and fourth of Waddington’s factors. Their empirical emphasis is usually with demonstrating that particular attributes of socioecological systems are ‘adaptations’ that contribute to ‘genetic fitness’ and have ‘come into being’ because, relative to potential competitors, they have left more replicas. With specific reference to human systems we are dissatisfied with a focus on particular attributes taken in isolation from the ‘system’ as a whole. As argued below, we consider that the ‘units’ relevant to social change are neither genetic mutations nor meme-like analogues of genetic mutations.

Ingold (1998, 2007) provides useful critiques of neoDarwinian accounts of change in both anthropology and biology. He combines ideas from developmental biologists (e.g. Goodwin 1994) with those of the ecological psychologist Gibson (1979) to argue that the human being should be understood ‘as a single locus of creative growth within a continually unfolding field of relationships’ (Ingold 2000:5-6). He directs attention to theoretical work in ‘development systems theory’ that ‘allows us to recognize that we are not dealing with separate but parallel systems, respectively biological and cultural, but rather that the biological process of development, of the living human organism in its environment, *is* precisely the process by which cultural knowledge and skills are inculcated and embodied’ (2007:16). It is here, Ingold considers, that we may gain insight into the processes that drive evolutionary change in *all* living beings. These approaches, both in biology and in the work of Ingold, emphasize the second and third of Waddington’s four factors of change – the epigenetic and exploitative systems. Odling-Smee (1995), for example, directed attention to Waddington’s schema when arguing that the products of development, learning and culture arise from facultative responses and, further, that those products influence the future course of evolution. The emphasis here is with ways in which organism-environment relations are ‘constructed’ such that each ‘organism influences its own evolution, by being both the object of natural selection and the creator of the conditions of that selection’ (Levins & Lewontin 1985:106; see also Gray 1997). With reference to humans, this last statement directs attention to the role of agency in contributing to change. While we draw on these approaches in what follows we acknowledge that, from a neoDarwinian perspective, they may seem to have conflated processes of evolution with those of development (ontogeny) without providing an adequate alternative to the former. There is a question of scale that has not

yet been satisfactorily resolved by development systems theory: what is the threshold at which developmental change is to be reimagined as evolutionary change?

Accounts of change that, on the one hand, emphasize the first and fourth of Waddington's factors and, on the other, emphasize the second and third differ in that the former stress the role of external forces in directing change while the latter stress the role of internal forces. Thus, at base, they emphasize different kinds of processes of change. We take this matter up below where, we argue, it is not a case of either/or but, rather, of which kind of change in what kind of circumstances.

Sociocultural anthropologists, especially those who have observed and reported change in the course of long-term ethnographic research, have tended to be ambivalent with regard to theoretical engagement with processes that may be entailed in social change. Indeed, many report observed changes – the products of change – without reference to the processes that underlie those changes. Some continue to write as though accounts of biological evolution are committed to linear, typological, and progressive scenarios of change and for these reasons have nothing useful to contribute to understandings of social change among people. For example, Biersack (1991:287) wrote: 'Paiela make themselves differently from the way the white man makes himself. As between Paiela society and postindustrial society there can be no evolutionary relationship because the relationship between these divergent means, ends, and worlds cannot be linear'. Or, again, with reference to Sawiyano, Guddemi (1992:312) wrote: 'The existence of hunter-gatherer-like formations in partially horticultural societies ... has important implications for cultural evolution (that field of study, with its unilinear bias, which studies such as this continue to undermine)'. With few exceptions – though Dawkins' (1996) *Climbing Mount Improbable* is prominent among them – the linear bias to which these authors refer is no longer a feature of either biological models of evolutionary process or hypotheses of phylogenetic relationship. A satisfactory account of the evolutionary relationship that *must* exist between Paiela society and postindustrial society would be one which depicted each of these societies as current end-points of two branches of a phylogenetic 'tree' and might be one which asserted that those end-points had been reached through the operation of universal processes. In these sorts of examples, sociocultural anthropologists are complaining about approaches to evolution that were more Spencerian than Darwinian, and, further, were abandoned long ago by nearly all biologists. These scholars have a distaste for the determinism – genetic, environmental or both – implicit in the extreme neoDarwinian and neoDarwinian-like accounts of evolutionary process which are promoted by scholars such as Dawkins (1976), Dennett (1995) and Blackmore (1999) and are now so visible in the popular imagination. Most have little knowledge of, or make little reference to, either substantial critiques of Universal Darwinism or, particularly, alternative approaches to theorizing evolutionary process from within biology. In our account of processes of change we seek to allay their concerns.²

Processes of Change

The process of change is never self-revealing (Dwyer & Minnegal 1999:379). The products of change are self-revealing, but the process is not. The latter may be understood only through inferences drawn retrospectively from analysis of the products. This is true whether we are considering biological or human processes of change. In biology, for example, 'natural selection' is commonly accepted as a primary process of change. In fact, the concept of natural selection is a retrospective codification of, and judgement about, inferences drawn about context-dependent

probabilities of surviving and reproducing. In this sense, therefore, 'natural selection' as process is not directly observable.³

Kinds of change

In several papers, and with reference to our own empirical data, we have made a distinction between two broadly defined processes of change (Minnegal & Dwyer 1997, 2001). We label these 'adaptation' and 'transformation'. Change qualifies as 'adaptation' when quantitative and context-dependent shifts occur in the expression of particular variables without substantive alteration to functional relationships between those variables and the contexts within which they are expressed. Change qualifies as 'transformation' when relationships between variables alter to elicit qualitative changes in the structure of the ensemble as a whole. Adaptive changes are unlikely to persist if circumstances return to an earlier *status quo* or alter anew. Transformative changes are more likely to persist in altered circumstances and, indeed, to provide a substrate upon which new adaptive responses to those circumstances arise.

Under these definitions adaptive change entails alterations to the frequency distribution of pre-existing variants or possibilities while transformative change entails the incorporation of new variants or possibilities. In the first case, form is the 'object' of change; in the second case it is the 'subject' of change (Levins & Lewontin 1985:85-106). The difference is between a process of change invoked by causes that are extrinsic to form and a process of change invoked by causes that are intrinsic to form. In neither case is it necessary that the underlying causal basis of the process itself be established by reference to genetic mechanisms.

The distinction between adaptation and transformation, as we have sketched it, parallels that which, in a different context, Brookfield (1984:16) made between intensification and innovation. His particular interest was with changes to systems of agricultural production. He contrasted the quantitative aspects of intensification and the qualitative aspects of innovation, emphasized the creativity inherent in the latter process, and noted that 'the simple spread of innovation is a process akin to intensification'.⁴ Elster (1983:93), in his broadly based treatment of technical change, drew a similar distinction between 'substitution' which was 'change in the production process on the basis of existing technical knowledge' and 'innovation' which was 'the production of new technical knowledge'. In discussions of change a distinction of this sort is of long standing. Firth (1954:17), for example, asserted that, in anthropological studies, 'there is a distinction drawn, explicitly or implicitly, between *structural change*, in which basic elements of the society alter, and *detail change*, in which social action while not merely repetitive, does not alter the basic social forms'. Here, surely, Firth was contrasting the outcomes of processes of, respectively, transformation and adaptation.

Similar distinctions are drawn in other domains of enquiry. Thus, Watzlawick *et al.* (1974:1-28), whose primary interests were with psychiatry and human interaction, argued that there were two types of change which they derived, respectively, from the 'theory of groups' and the 'theory of logical types'. First-order change, which corresponds to what we call adaptation, 'occurs within a given system which itself remains unchanged'; second-order change, which corresponds to what we call transformation, entails alterations to 'the system itself'. First-order change may be thought of as a 'game without end'; second-order change 'provides a way *out* of a system'. From a perspective of communication theory, Wilden (1980:493, 496) draws a comparable distinction between 'surface-structure change' and 'deep-structure change'; an example of the latter is provided by 'socioeconomic revolution' in which 'the reordering or

restructuring of the dominant socioeconomic codes ... make one society qualitatively distinct from others'.⁵

It is clear that two modes of change have been, at least implicitly, acknowledged in both the biological and social sciences. We note that, at this juncture, we make no claims with respect to the variants that are implicated with respect to either shifts in their quantitative expression or shifts in their qualitative relationship with other variants. We note also that neoDarwinian biologists tend to prioritize 'adaptation' and treat the transformative potential of 'mutations' as trivial while most sociocultural anthropologists, anxious about genetic determinism, prefer to collapse both categories of process under the heading of 'transformation'. In the biological sciences there is usually an explicit focus on notions of causality; in sociocultural anthropology issues of causality are commonly suppressed. And, we note finally, that, in practice, adaptation may be understood as 'reproduction in changing contexts' and, in this sense, is a thoroughly Darwinian – though not neoDarwinian – ecological process of selection.⁶

Illustration: Between 1986 and 1995 Kubo hunter-horticulturalists of the interior lowlands of southern Papua New Guinea increased the ratio of domestic pigs to people (Minnegal & Dwyer 1997). Their aim, which was in fact unachievable, was to increase access to money by selling pigs to employees of Government and mining exploration companies. The substantially increased work load entailed in caring for additional pigs fell to women with the consequence that, as the ratio of pigs to people increased, the time that wives spend with their husbands decreased and, in parallel, tensions emerged in marital relationships. Prior to these changes in the management of pigs, husbands and wives, and their children, spend much time together gardening, processing sago or on extended hunting and fishing trips in the forest. During 1995, pastors and others associated with the Christian Brethren Church were active in the Kubo area. They promoted an understanding that women – represented by Eve – were responsible for the hardships and disadvantage that had befallen Papua New Guinean men. They encouraged women to indicate both their shame and modesty by covering their heads and considered that a separation of men and women was right and proper. We interpret the decrease in time that wives spent with husbands as an indirect adaptive response to the increase in the ratio of pigs to people. Had the number of pigs decreased to earlier levels, and had nothing else intervened, we would have expected patterns of interaction between husbands and wives to return to the earlier status quo. But something else did intervene. The initial impact of the Christian Brethren Church was to create an understanding that husbands and wives should maintain greater separation than had been usual in the past, an understanding that, entirely fortuitously, coincided with an emerging practice. To the extent that this understanding took hold among Kubo, the altered patterns of interaction would reflect a transformation in the relationship between husbands and wives. That is, the relationship between variables would have changed such that a reduction in the ratio of pigs to people would no longer have elicited an adaptive increase in the time husbands and wives spent together. (Some other social changes among Kubo, interpreted as adaptive or transformative respectively, are summarized in Minnegal & Dwyer 2007:23.)

'Units' of change

We commented above that adaptive change entails alterations to the frequency distribution of pre-existing variants or possibilities while transformative change entails the incorporation of new variants or possibilities. Our focus here, therefore, is with the 'nature' and expression of those new variants or possibilities. With respect to social change we assert that there are no fixed 'units' of change. Neither 'genes' nor their analogical surrogates 'memes' are implicated in social change.

The variants that are relevant to transformative social change in human systems, and ultimately therefore to adaptive change in those systems, arise in the imagination and are expressed in practice. They are, in the first instance, 'tropes' or, as one of us once suggested, 'ontogenetic puns' (Dwyer 1986:363-7; 2005). Here we extend the referents of 'trope' beyond the usual dictionary meaning of 'figures of speech' – metaphor, metonymy, synecdoche, irony, pun, and so forth – to include all figurative expression. Gesture is important, and ritual or art that are not or cannot be put into words are undoubtedly important. It is tropes that inform the resemblances humans detect between things, the relationships they infer from those things, the classificatory order they impose upon things, and the contrasts they detect and express as differences between things; in short, the meanings and, ultimately, the values they derive from or attach to things. In the case we described above, the potential transformation arose through a figurative extension of the relationship posited between Eve and Adam to the relationship between 'women' and 'men'. Similarly, the metaphorization of Captain Cook as the returning God Lono, itself reinforced by coincidence with the lunar calendar and an associated festival, may be seen as the trope that initiated a cascade of transformative – and adaptive – changes in Hawaiian social life (Sahlins 1981).

'Tropes' should not be understood as being, in any sense, analogues of 'genes' (or 'memes') because, as constructs of the imagination, they arise within an 'extra-genetic' domain of fluid and facultative response; they are party to the 'exploitative' system recognised by Waddington. They arise within a life-long developmental domain that cannot be reduced to an orderly combination of high fidelity, high fecundity replicators and non-Lamarckian transmission between individuals (cf. Odling-Smee 1995). There is no quantitative sense in which they are necessarily commensurate with one another. Their fundamental characteristic is, perhaps, their plasticity – their error-proneness. On these counts, therefore, 'Universal Darwinism' – Dennett's (1995) 'mindless' evolutionary algorithm or Blackmore's (1999) subordinate model of 'memetic evolution' – cannot provide a satisfactory basis from which to understand social change in human systems.

Tropes are fluid. They lack the 'fixity' that is conventionally attributed to both 'genes' and 'memes'. They arise and persist, or fail to persist, in particular contexts. They may emerge *de novo* or be borrowed from neighbours. And where they do persist they have the capacity to modify the context in which they find themselves and to modify the social arrangement within which they are incorporated. As Odling-Smee (1995) put it, we are dealing with 'ecological inheritance', not with 'genetic inheritance'; we are dealing with relations and not with entities and, at least in this regard, with a process that is more Lamarckian-like than it is Darwinian-like.

The identification and analysis of tropes – of metaphors and symbols – in ethnographic settings has a long history in anthropology (e.g. Fernandez 1991, Gell 1975) and the centrality of tropes in processes of social change is highlighted by a few authors (e.g. Barth 1987, Wagner

1972; see also Barnett 1953). Our own argument here resonates strongly with that of LiPuma (2001:xii) whose theoretical focus with regard to social change was with the ‘transformation of people’s categories of knowledge and the structure of desire’. It is these transformations, he asserted, that are generative: ‘changes in epistemology and desire are an engine that motivates other changes’ which feed back upon themselves to motivate ‘still further changes’. We go further than LiPuma only in arguing that, at a fundamental level, tropes provide the source of those changes in epistemology and desire. It is tropes, we assert, that condition ever-changing perspectives on the world and ever-changing patterns of engagement with the world (Dwyer 2005; see also Dwyer 1979).

Illustration: Between 1988 and 1991 some groups of Kubo people moved from failure to success in attempts to maintain chickens as village-based domestic animals (Dwyer & Minnegal 1992). The initial context in which this shift was made possible was a major reduction in the population of domestic dogs following a distemper epidemic in the latter half of 1987. Earlier attempts to maintain chickens had been frustrated by the predatory behaviour of village dogs. After the epidemic, people gradually acquired pups that, in various ways, were trained to leave chickens alone. But, while a substantial reduction in the number of dogs provided the context in which successful domestication of chickens became possible, it was pigs that provided the people with a model of management procedures. Young chickens were tamed in the same way that piglets were tamed; they were individually bonded to a female carer in the same way that piglets were bonded; they were transported between village and gardens or bush houses in the same way that piglets were transported; and they were ‘owned’ or agisted in the same ways that piglets were owned or agisted. Thus, the mechanism that underlay the observed change was one of metaphoric extension from one domain – that of pig management – to another. The ‘logic of pig management’ as trope was extended to the incorporation of chickens within the repertoire of Kubo forms of animal domestication. During the same period, and in a context where people affiliated with the Seventh Day Adventist Church were unable to eat pork, people attempted to rear cassowaries in captivity (Dwyer & Minnegal 1992). Again, they modelled their practices on procedures that operated with pigs. In this case, however, the model was cognitive rather than operational in being founded on Kubo conventions of exchange which required visible and public knowledge of the productive effort entailed in rearing the animals that were to be transacted. Substitution of the meat of cassowaries for that of domestic pigs, necessitated by the SDA connection, required that the exchanged cassowaries were perceived to be analogous to the pigs. Meat from wild caught cassowaries would not satisfy this need.

Illustration: In 1986-87, at the Kubo village of Gwaimasi, we observed, and indeed unwittingly contributed to, people’s growing recognition of the commensurability of the various denominations of Papua New Guinean coins and notes (Minnegal & Dwyer 2007). To that time, the logic of exchange and, more generally, of sociality among Kubo placed emphasis upon the irreducibility of difference (of objects or persons) and, by extension, upon individual, not categorical, identities of actors (Minnegal & Dwyer 1999). In the eight years that followed our first extended stay with Kubo, the people gradually came to appreciate, though they could never articulate, the logical frame within which a universal currency is situated. And it was this framework, this logic, and not money itself, that ultimately transformed Kubo life-ways profoundly. It was the abstract

and totalizing logic of reification, commensurability, anonymity and categorization that they grasped and extrapolated to other domains of life – to the meanings they gave pigs, women, assemblages of people, and land. In each of these domains, as we have elaborated elsewhere, there was a shift from a relational to a categorical epistemology that was expressed in the ways that people both spoke and acted. It was not money *per se*, or even the desire for money, that led to these changes. It was an imaginative grasp of the logic of money and the metaphorical extension of that logic to understandings and practices concerning gender relations, conceptualization of rights to land, group boundaries and individual interests. The ‘logic of money’ as trope underwrote subtle but sweeping changes in Kubo sociality.

‘Agents’ of change

Our third theme with respect to theorizing social change concerns the extent to which, and the ways in which, those who are, or may be, the objects of change are also the subjects of change. Here, then, we are dealing with issues of choice and agency; with the extent to which, and the ways in which, human actors as intentional beings are implicated in the adaptive and transformative changes that befall them.

The notion of ‘agency’ – often ill-defined or not defined – has become increasingly prominent in anthropological discussions of reproduction and change in social systems.⁷ Under our preferred definition, agency is ‘intentional causal intervention in the world’ (Ratner 2000:413); it is the capacity, within the context of existing systems of relations, to act on the world rather than merely in the world (Dwyer & Minnegal 2007). That capacity, however, does not ensure that actors will achieve intended outcomes (Sökefeld 1999:424). We recognise that where there is a mismatch between intention and outcome the latter will shape future strategies for operationalizing intentions. This is implicit in the illustrations we have provided under both ‘kinds of change’ and ‘units of change’ that concern the contribution of money, and of the logic of money, to social change among Kubo.

Like many earlier workers we recognize a recursive relationship between ‘agency’ – as choice – and ‘structure’ – as constraint – and consider that practice theory offers insights into both that relationship and the contribution that agency may make to altering that relationship. As Ahearn (2001) has noted, earlier approaches to practice theory, such as those of Bourdieu (1977) and Giddens (1979), had more to say about the reproduction of social arrangements than about change in those arrangements. ‘The central problem for practice theory is ... precisely the question of how actors who are so much products of their own social and cultural context can ever come to transform the conditions of their own existence, except by accident’ (Ortner 1989:14). Ortner’s work, and that of Sahlin (1981), do, however, have an explicit focus on social change. In Sahlin’s case, the crucial mechanism implicating agency and facilitating social change is what he called ‘the structure of the conjuncture’ (1981:35) wherein actors strive to bring conventional understandings to bear on new situations and, in the process, produce unintended consequences.⁸ In Ortner’s case, the crucial mechanism relies on the existence of ‘conflicting discourses and conflicting patterns of practice’ – structural contradictions – that ‘recurrently pose problems to actors’ (1989:14). And these problems may be resolved, Ortner proposes, because the actor is herself or himself ‘loosely structured’ and thus has the capacity to find meaning in different components of culture at different times and places (*ibid*:198). There are several difficulties with both these understandings. First, they appear to prioritize structure

over agency; secondly, there is a hint of circularity in that a diagnosis of the actor as ‘loosely structured’ may simply be another way of saying that she or he has agency; and thirdly, agency is envisaged as being brought to bear only in unusual situations or as a ‘problem-solving’ strategy when, in fact, it must be ever-present and almost always activated.

Our own approach follows from those of Sahlins and Ortner while attempting to resolve the difficulties noted above (Dwyer & Minnegal 2007). To the extent that agency entails choosing to do one thing rather than an alternative, we assert that agency is expressed at sites of ambiguity in socioecological systems and, further, that these ambiguities may either preexist in the dialectics of structure (or discourse) or arise *de novo* in the dialectics of strategy. In both cases, the actor imagines possibilities entailed in those ambiguities and chooses to act on them by either reproducing or modifying previous practice.⁹ There is no requirement that the actor has a long-term goal in mind and, hence, as Sahlins observed, the choice to act may have ‘unintended consequences’. In addition, however, our approach emphasizes the contexts in which choices are made and to this extent offers an ecological – that is, a relational – interpretation of the role of agency in the reproduction or transformation of social systems. In the domain of human affairs, therefore, agency may be understood to shape the kinds of facultative responses that, in the biological domain, Odling-Smee (1995) considered to underlie ‘ecological inheritance’. Where actors express choice within the frame of the dialectics of structure then it is likely that changes that are manifest will be adaptive; we are likely to observe change in the expression of particular, pre-existing, variables. And where actors express choice within the frame of the dialectics of strategy there is a greater likelihood that changes that are manifest will be transformative; we are likely to observe the appearance of new variants – tropes – that may alter the relationship between sets of variables.

Illustration: In an analysis of the role of agency in several dimensions of social change among Kubo through the years 1986 to 1999 we wrote: ‘When Kubo repositioned foreigners as existing beyond the limits of their own relational ethos they played with the ambiguity inherent in two coexisting discourses that separated their world into social and environmental domains on the bases of different expectations and responsibilities; the domains were fixed, the boundary between them could be repositioned (Dwyer & Minnegal 1998). When, as a consequence of sedentization, access to resources was experienced as problematic both land-owning and non land-owning residents sought to manipulate social outcomes by drawing upon different, yet concurrent, discourses concerning use rights; genealogy was given, engagement was experienced (Minnegal & Dwyer 1999). When they reimagined women, pigs, and land in categorical terms they drew upon ambiguities that had been created in the domain of exchange by the intrusion of money into their social world; gift-giving is personalized, monetary transactions are anonymous (Minnegal & Dwyer 1997, 2007). In all these cases, the choices people made – and, hence, their agency – were implicated in changing the conditions of their own existence and the process entailed was inherent in the dialectic between alternatives or, as Sahlins (1981:72) expressed it, in the dialectic between conventional and intentional values’ (Dwyer & Minnegal 2007:558). In the second example above, concerning sedentization, people acted on the basis of pre-existing possibilities and the observed changes entailed quantitative shifts in the expression of particular variables. To this extent, those changes were adaptive. In the third example, concerning categorization, people acted on the basis of new understandings and the changes entailed qualitative

shifts in the relationship between variables. To this extent, those changes were transformative. The first example, concerning the repositioning of foreigners, is more complex in combining adaptive and transformative possibilities; adaptive in the sense that there was a shift along a single variable – that which positioned social and environmental domains of interaction – and transformative in the sense that people’s understandings of their relations, and hence interactions, with ‘outsiders’ had irrevocably changed.

Four problems

1. The comparative method

Analyses of either the processes or the products of change are, from the outset, committed to engagement with issues of comparison. That is, the comparative method has relevance for both synchronic studies of different configurations of people and diachronic studies of particular configurations of people. But comparative investigation – either across space or across time – requires that the analyst invokes a metalanguage that may not be congruent with the understandings of the people studied or, at least, of the ways in which they express those understandings (Dwyer & Minnegal 1999:379, 2007:547; see also Keen 1995, Knauff 1993:122-4). Several questions are implied here. First, is an etic analysis – one that locates the operation of the focal system in relation to other systems of that kind – necessary to an understanding of social change? Secondly, should emic understandings of change – developed with reference to only the focal system – be accommodated within an etic frame? And, thirdly, irrespective of ways in which the first two questions are answered, how may an etic frame allow that emic understandings do, in fact, influence processes and outcomes of change ‘on the ground’?

An implication of our account of change is that an etic perspective is both necessary and inevitable in any attempts to reach an understanding of processes of social change. Those processes, we have asserted, are never self-revealing. They may be inferred only retrospectively and, hence, will always entail a level of abstraction – and, consequently, be burdened by reification – that is not immanent in the immediate operation of the system under investigation. With regard to the second question we consider that there is no necessary reason why local perspectives on processes and outcomes of change should be congruent with the understandings reached by analysts. That is, while local perspectives on change are worthy of study in their own right such investigation is unlikely to reveal the processes that actually operate across time and space.

The third question is the most difficult to answer. Recent writing on reproduction and change in Melanesian social formations has prioritized emic understandings. For example, Wagner (1991:330) wrote that ‘cultural reproduction concerns the manner and means by which the concepts and usages of a culture are carried forth in time and reconstituted’ and proceeded to show how, within a context of change, mortuary feasting among people from New Ireland served as a principle means to this end. His aim was to describe or interpret aspects of reproduction rather than to explain the general phenomena of either reproduction or change. This is true also of other studies that are concerned with identifying and explicating features of different societies that make a major contribution to continuity, often through the maintenance of social identity, in circumstances where so much else appears to be changing (e.g. Akin & Robbins 1999, Foster 1995). Quite rightly, the focus is upon the ‘insider’s point of view’ (Weiner 1980:80). Where the

intent of a study is descriptive or interpretative rather than explanatory, an emic perspective may be legitimately prioritized.

However, a deeper difficulty intrudes with respect to the relationship between agency and change. Local understandings of agency may not be congruent with those of analysts, or may extend the reach of agentive capacities to objects and beings that the analyst judges to be either devoid of agency, lacking material substance, or both (Dwyer & Minnegal 2007:547-8). At the same time, however, local understandings must influence people's sense of structural or strategic ambiguities and, hence, the choices they make in relation to those ambiguities. To this extent, therefore, it is necessary that etic accounts of processes of change do acknowledge and accommodate emic understandings that may influence those processes. We have not entirely resolved this issue in the account of process provided in this paper.

2. Methodological individualism

To the extent that an account of processes of change in human systems is etically framed there is the risk that it may collapse to an instance of methodological individualism and, for this reason, be unable to explicate, or contain, the social dimension that necessarily underwrites all human understanding and practice. This is a general problem that recurs in all evolutionary accounts of the survival, spread and eventual dominance of variants – ‘hopeful monsters’ – that, in the first instance, arise and are expressed in or by a single individual (Dwyer 2005:20). Within biology the problem is partially resolved where the new variants are asserted to be fundamentally genetic and their spread is seen simply as a statistical consequence of their fitness relative to other variants in prevailing contexts. Here, there is no logical inconsistency because the argument is, from the outset, framed by and beholden to methodological individualism.

The problem is not resolved, however, where new variants arise and are expressed in extra-genetic domains or where it is acknowledged, as in human social systems, that those variants do not stand alone but are necessarily relational. We might argue that because tropes – as the ‘units’ of variation – condition the present and future engagement of an actor they will also condition the way that others, with whom that actor interacts, experience and engage with the world. We might reinforce this assertion of intersubjectivity by drawing on Sperber's (1985, 1996) epidemiological model of the spread of representations; a model that is, at base, genetically uncommitted and sees selection as the prime mover of change at the level of populations. And, finally, we might draw on recent work in neurobiology that has identified ‘mirror neurons’ in macaque monkeys that are activated in both an individual performing certain actions and an individual that is watching the performance (Gallese & Goldman 1998, Iacoboni *et al.* 2005). Structurally and functionally analogous neurons appear to exist in humans (Iacoboni *et al.* 1999). Understanding of the extent of ‘mirroring’ made possible by this neurological system is, as yet, provisional. Ramachandran (2000), however, has enthusiastically promoted ‘mirror neurons’ as offering a biological basis for the emergence, in humans, of empathy and the ability to adopt another's point of view; he has called them ‘empathy neurons’ or ‘Dalai Llama neurons’. Each of these possibilities directs attention to the necessary relational properties of outcomes that follow from the intentional acts of particular individuals. Some approaches based in game theory offer the potential for exploring this link in terms of society-specific understandings of ‘fairness’ and ‘generosity’ (e.g. Hagen & Hammerstein 2006, Henrich *et al.* 2001) though, to date, the emphasis in those studies is with reproduction of, rather than change to, the system.

3. Directional change and teleology

To the extent that change across time may be characterized by an increase in ‘complexity’ or by the ‘disembedding’ of relations then it is necessary, first, to understand why and how an identified process of change may have such long-term, and seemingly directional, consequences and, secondly, to avoid the trap of teleological reasoning. We ourselves have favoured the views that, through time, though not invariably, the complexity of systems may increase and relationships may be ‘progressively’ disembedded (Dwyer 1979; Minnegal & Dwyer 1998, 1999). We are certainly not alone. Archaeologists, in particular, have long been concerned with the ‘various conditions and processes that propelled some societies toward more complex forms of organization’ (Arnold 1996:1; see also Ingold *et al.* 1991, Rindos 1984) and other authors have written of the disembedding tendencies of modernity (Giddens 1990, Hornborg 1996, Polanyi 1944). Hornborg, for example, argued that disembeddedness is extreme where the importance of ‘local and implicit meanings’ gives way to understandings based in ‘abstract, totalising systems such as science or the market’ (*ibid*:45). In evolutionary biology the notion that, through time, complexity may tend to increase has been regularly conflated with a notion of ‘progress as improvement’. On this count, given the implied connotation of teleology, it has been subject to much debate and, for most biologists, dismissal (e.g. Dawkins 1996, 1997; Gould 1997; Mayr 1974).

The notion of ‘complexity’ may, however, be divorced from that of ‘progress’, and from any connotation of goal seeking, if it is understood as entailing two dimensions: the degree to which the parts that comprise the system are mutually involved and the degree to which the form that represents the system is individuated (Minnegal & Dwyer 1998). That is, complexity may be understood to be a simultaneous expression of both relational and categorical phenomena. And that simultaneity may be precisely the outcome of a world that is built by tropes. On the one hand, tropes gather together as relational fields that give succour to, and sustain, the ideological and institutional predilections of sets of interacting persons and, on the other, as abstractions from the experienced world, they may create a semblance of coherence (e.g. Dwyer 1979; Fernandez 1991; Wagner 1972:169-70). Tropes, therefore, subserve both relational and categorical epistemologies and, through time, the play of tropes may well often promote both greater involvement of parts and greater individuation of form. Under this argument ‘disembedding’ is implicated in shifts to greater complexity and the process entailed should not be seen merely as an outcome of modernity (Minnegal & Dwyer 1999:76; see also Dwyer 2005:19, Note10).

4. Dualism and an ethical dilemma

One consequence of etic analysis is a tendency to impose dualities where they do not or should not exist. Analyses of change are susceptible to this difficulty in that they are commonly framed by reference to an explicit or implicit dichotomy between form and context. Adaptive change, for example, is understood by biologists in terms of the responses made by populations of organisms (as form) to altered environmental circumstances (as context).

For analysts, however, a procedural dichotomy of form and context may serve as a provisional simplification that, it is intended, provides access to more complex realities. Indeed, in the preceding account of processes of social change we have, at least sometimes, relied on the assumption that form and context can be held apart. But is this good enough? Not all people live or think by a separation of form and context. When such people are the object of enquiry,

analyses grounded in that separation will be unable to reveal the reality of their lives either to us as analysts or to the people themselves (Dwyer 1996:180). Moreover, it is increasingly common that understandings derived from dualistic analysis are imposed upon people whose worlds are constructed differently, or inform decisions implemented in the name of 'development'. In such cases those people are encompassed by, and may be subordinated to, a system of knowledge that is likely to do little more than perpetuate that 'encompassment' and 'subordination' (Hornborg 1996; see also Fox & Gingrich 2000:8-12, LiPuma 2001).

There is, admittedly, a long tradition of thought that reveals the dichotomy of form and context to be inadequate by arguing that the relationship between organisms (or people) and environments is mutually constitutive (e.g. Bateson 1979, Ingold 2000, von Uexküll 1982); as Descola & Pálsson (1996:18) put it, 'person and environment embrace an irreducible system'. In practice, however, it has proved easier to operationalize this understanding in synchronic studies that focus on reproduction rather than in diachronic studies that focus on social change. To the extent that the latter, comparative studies rely on an analytical dichotomy of the sort identified then those studies encounter an ethical dilemma that we ourselves have not yet resolved.

Concluding Remarks

In this paper we have outlined primary features of a theoretical perspective on processes of social change in human systems. We have drawn on previous theoretical insights in anthropology and biology and have illustrated key theoretical assertions by reference to our own earlier work in Papua New Guinea. Our synthesis combines an exploration of broadly defined kinds of process (adaptation and transformation), the nature of variants (tropes) that are expressed and consolidate as change occurs and, with specific reference to agency, the ways in which intentional actors are implicated in the changes that befall them. The distinction between adaptation and transformation as kinds of process has been made by others but has had little impact in sociocultural anthropology. Our focus on tropes as 'units' of change differs greatly from the Universal Darwinist prioritization of genes or their meme-like analogues and reveals that social change in human societies cannot be reduced merely to Darwinian process. Our argument with regard to agency reinforces the preceding assertion in recognising that the imagination and, hence, tropes are always implicated in the choices made by actors and thus that agency is party to an 'extra-genetic' domain of fluid and facultative response that may be often implicated in social change.

In concluding the paper we have directed attention to four problems that may arise when analysts strive for generality. These concern both methodological and ethical issues. In large part, they are a consequence of the reification of concepts implicit in the project of comparison. They arise also where, in the interests of initial simplification, arguments are framed in terms of polarities that may be distanced from, but tend to assume an air of, reality. We recognize that, with regard to both reification and polarization, the pursuit of general theory can potentially have negative implications for those who are encompassed by such theories. At the same time, however, we consider that without an adequate appreciation of the theoretical position that informs externally-derived decision-making the consequences for those who are subject to those decisions will be almost always to their detriment.

Notes

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1. Our use of ‘social change’ is broad; it embraces ‘ecological change’ and acknowledges a necessary dialectic between the two. Thus, for example, alterations to systems of subsistence or production will always entail alterations to one or more of the size of work groups, the composition of work groups, and the scheduling of tasks in time or space (Dwyer 1986).

2. Some sociocultural anthropologists refrain from using the term ‘evolution’ with reference to change in human social systems. They are concerned that the entangled notions of evolution, speciation and phylogeny, if extrapolated from nonhuman to human domains, may appear tainted by assumptions of racism (Marks 2007:11-2). To them, ‘groups’ of people, no matter how defined, are in no way analogous to the ‘species’ that interest biologists. Following Templeton (1989), however, species may be understood as bounded systems in which the parts – the individuals – recognize each other as fellow members and behave in qualitatively different ways toward members and non-members respectively. From this perspective a change from one human system of relations to another that is architecturally distinct may be seen as analogous to the change from one biological species into another. The comparability arises from the fact that, in each case, the outcome is the creation of a concatenation of processually-linked individuals which may be recognized as more-or-less structurally distinctive, cohesive and, within limits, self-reproducing (i.e. autopoietic). On these grounds we are not anxious about using the term evolution with reference to processes of change that have influenced or do influence human societies. To investigate those processes does not entail any judgment about particular outcomes.

3. Most empirical studies of social change, including our own, entail interpretations of changes arising when local level formations encounter and respond to some combination of the actual or imagined diverse concomitants of modernity – colonialism, capitalism and Christianity (e.g. Robbins 2004). One consequence of this is that efforts to theorize processes of change may be unduly influenced by the sorts of outcomes observed in the context of modernity. As Strathern & Stewart (2004:160) noted, there is a tendency to ‘attribute the causes of change’ to abstract processes such as ‘commodification, individualism, and globalization’ rather than to ‘the choices of conscious human beings trying to solve their problems and achieve their aims’.

4. Brookfield (1984) noted that, in practice, it is not always easy to distinguish instances of ‘intensification’ from those of ‘innovation’ or, indeed, to identify when and where one process gives way to the other. We accept that the same methodological problem arises with regard to processes of ‘adaptation’ and ‘transformation’.

5. Our definition of ‘transformation’ is close to that of Sahlins (1981:37) who understood this process as ‘an alteration in the relationship between given categories’ that ‘affects their possible relationship to other categories’ and does so in such a way that ‘the structure, as a set of relationships among relationships, is transformed’. Sahlins, however, did not consider a separate process of change that was equivalent to adaptation.

6. Darwin's model of organic evolution was primarily one of adaptation, while the neo-Darwinian model combines both adaptation and transformation but subordinates the latter to the former.

7. A recurring problem in the anthropological literature on reproduction and change concerns the distinction in theory and in actuality between these two notions. Sahlins (1981:67) acknowledged that 'reproduction' and 'change' are 'analytically separable' but asked, perhaps rhetorically, 'are they truly distinct?' And, similarly, Ortner (1996:17) wrote that 'of course questions of social reproduction and social transformation can never, *and should never*, be wholly separated'. With reference to human systems, 'reproduction' refers to the replication of systems of relations while 'change' refers to alterations that appear within those systems of relations. That which is or may be reproduced is, in fact, an analytical abstraction while changes that occur are or may be concrete realities. We grant that this distinction may be difficult to operationalize – if the system of relations is not fully grasped at a particular time, then it will be difficult to know whether it has or has not altered in either a quantitative or qualitative sense at a later time – but assert that complications entailed in the usage of these two notions arise, primarily, because the levels of abstraction relevant to each tend to be conflated when they should be held apart.

8. With a focus on communication and change in open systems we have proposed that 'change in open systems occurs as they consolidate and replicate sameness' (Dwyer 1990: 195; see also Dwyer & Minnegal 1992: 382). Our argument here was that social change may arise as an epiphenomenon where people seek to reproduce the known and familiar in altered circumstances. This argument is not dissimilar to that of Sahlins.

9. Many practices are, of course, regularly repeated without the actor being conscious of possible alternatives. These qualify as enactments of the 'doxa' (Bourdieu 1977). Under our argument they represent sites that, for the actor, currently lack ambiguity though the potential for ambiguation always exists.

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