Social anthropology bases its practice on what we might call the unpredictability of initial conditions, unpredictable, that is, from the viewpoint of the observer. Ethnography, the kind of comprehensive account which gathers everything in, encourages the thought that one cannot predict at the outset of an inquiry where it will lead or what will turn out to be relevant to exposition. It also encourages the observer not to specify completely in advance where to look for the correlates and conditions of the outcomes he or she observes, and thus to confront unpredictabilities in social life.

In the past, social anthropologists have produced all kinds of justifications for ethnographic comprehensiveness, such as the idea of holistic societies which had to be described in the round. But while the justifications nowadays appear theoretically flimsy, the practice is as important as it ever was. And it is particularly important in the study of environmental issues. The unfolding of complex interchanges “between” culture and environment makes the observer repeatedly aware of “the unpredictability of initial conditions”: factors that may have momentous impact can, until the impact is known, seem small.
or obscure. Recent developments in Papua New Guinea afford an interesting illustration. In the spirit of the exercise, I begin at a point that might seem at the outset to have little bearing on environmental issues as such.

The importance of scale

The man in figure 1, who is from Mount Hagen in the Highlands of Papua New Guinea, was photographed more than thirty years ago. He is gazing at inflation. Inflation has been the anthropologist’s term for what was brought about by a massive influx of shells into the local economy following Australian pacification of the region. Pearlshells stream down the ceremonial ground from the men’s house at its head.

Gold prospectors, administrative officers, and then missionaries of diverse persuasion flew in planeloads of shells of all kinds, with which they were able to obtain food in the form of root crops and pigs. The goldlip pearlshell that had formerly circulated in often broken but highly prized pieces now became available as whole specimens and in great number. They were absorbed into people’s transactions with one another. The effects were political as well as economic, there being a corresponding increase of occasions such as that illustrated in figure 1, clan displays of wealth in the context of a war compensation payment, given as recompense for help to allies and to both allies and enemies as recompense for loss. Such payments acquired a momentum of their own, developing into reciprocal exchanges between groups who vied to outdo one another. Donors challenged recipients to make as good a return of wealth. If this served the pacific-

1. The same photograph is described from a rather different perspective in M. Strathern (1993); both this (figure 1) and figure 3 appear in chapter ten in M. Strathern (1999). This essay overlaps with, and is a companion paper to, chapters nine and ten in that book.

2. The goldlip pearlshell, particularly prized in Hagen, figured into bridewealth and mortuary payments, as well as homicide compensation, contexts in which pigs were also transacted; initially it was the only valuable which the expatriates could use to “purchase” meat (live pigs). Cowrie and other types of shell were acceptable for vegetable food and labor.

3. The authority on such compensation payments, which he has documented over a thirty-year period, is Andrew Strathern (e.g., 1971; and recently 1993, 1994).
Figure 1: Spectators at a death compensation payment; Mount Hagen, Western Highlands Province, Papua New Guinea, 1964 (Photograph by the author.)
ation policy of the Australian administration in the 1950s and 1960s, it also served continuing clan assertiveness, expressed through the commemoration of losses suffered and injuries inflicted during battles now of course in the past. The increase of such occasions is well documented.

I doubt, however, if inflation is in this man’s mind. He might, though, be reflecting on group strength, here evinced in the capacity to draw shells together and disperse them again, which mobilizes numerous connections among people. If he were a recipient, he might be counting them; but anyone may inspect their visible quality, their “skin.” Such shells are also worn on the donor’s skin, and he himself has on his chest a bamboo tally that records his own prowess in transactions—every slat indicating an occasion on which a set of eight (or ten) shells were given. Pigs would come in return for shells, and later return gifts of shells. In the 1960s, people took a keen interest in what we might call the exchange rates, and looked back to the days when one shell was equivalent to one pig. But rather than bemoaning the drop in value of individual items, they tended to regard themselves as more fortunate that their ancestors. Their sense of importance was in no way diminished. Instead, men became more demanding over the quality and quantity of the specimens, their critical judgement keeping pace with the new opportunities. The shells retained their signification of wealth and strength. This was so until the late 1960s, when their value was overtaken by a second influx of wealth tokens, money.

Note the double process. The scale of wealth that poured into the New Guinea Highlands in those early years—at one point Highlanders were extracting from the tiny expatriat population shells of all kinds at the rate of half a million a month—had repercussions on many aspects of the political and economic life, and no historical account of the region can ignore the scale of the changes. At the same time, shells had an impact precisely because of what was kept constant: the value put on wealth as a sign of strength and the capacity that wealth revealed. For ambitious men in Hagen, this was above all the capacity

4. Küchler (1993: 94) explores a New Ireland conceptualization of “skin” (in the context of landscape) not as surface but as something which has surfaced “and is constructed in terms of a hidden, interiorised pattern.”

to dispense or distribute wealth resources through ceremonial exchange, for that in turn was a sign of commensurate ability to elicit or extract resources from others. Individual care and attention continued to be paid to each item; it was just that more shells circulated faster among more people. Without this constancy, then, we cannot complete the description of the effects of increase. From any one person’s perspective their power seemed expanded, for they brought more people into their orbit; yet the prominence which that power had in the past given to one or two persons who took the lead in such exchanges was now gained at costlier price. Keeping in place the ratios between wealth and prominence or wealth and strength took more resources. That meant both finding the extra wealth to do so, thereby increasing the scale of diverse enterprises, and keeping unchanged the value placed on wealth extraction as a sign of influence, and thus conserving the equation between the two.

This no doubt sounds familiar enough. It introduces a query however. When does scale matter in our accounts of social life and when does it not? Or rather, is there any mileage to be gained from thinking about the relationship between the systemic effects of scale change on the one hand and on the other the capacity of systems to retain their features across different orders of scale? There is a reason for asking this question.

My little vignette from the 1960s presents a state of affairs long superseded by other events. Inflation has had its final effect; there are no shells in circulation these days. Yet that period ought to remain

6. Inflation in a “commodity economy” based on productive consumption, implies a readjustment in the ratio of good and money to one another. What would inflation in a “gift economy” (cf. Gregory 1982: 31), based on consumptive production, look like? Presumably, it would entail changes in the rates by which relationships are reproduced. Inflation in a gift economy might be defined as an increase in the quantity of items, goods or money, against the capacity of relations to absorb them (i.e., reproduce themselves by them). In short, relationships expand to meet the increased circulation of items. The result is not necessarily “more relationships”—but the underlying premise of reciprocity or obligation in relationships evoked more frequently and at higher level of internal demand. So what is subject to increase are the occasions on which relations are activated.

7. Big men initially accomplished this by attempting to control the flow of wealth, drawing it to themselves and then making sure it went out of circulation (in truck purchases and the like).
interesting as one of the pasts from which the present has come. The conditions for the present are there; the question is how to identify them. Can one actually seek and identify conjunctures which might make for unpredictability? We may have a case in point here. When parts of a system have been drawn into one vortex (scale changes introduced through the influx of shells have their own repercussions), while an essential part of the same overall system is behaving quite differently, drawing other elements towards it in its own vortex (sustaining a constancy of values that disregards scale), do we not start describing a particular kind of bifurcation? If so, then how the system develops will depend neither on the autonomy of the two separate trajectories, nor on a dialectical relation between them, but on a dimension somewhere between—on the conditions which make each the starting point for the form which the other takes. This is how I have been describing inflation. If inflation points to processes that are both scale-sensitive and scale-insensitive, it is entirely unpredictable how this combination will develop. Let me treat that period of inflation in the Highlands of the 1960s as a set of initial conditions for a present-day outcome. We shall see what that outcome is in due course.

Meanwhile, my question is: when does scale matter and when does it not? Some of the variation between Papua New Guinean societies is germane to my argument, although this is not the place for detailed comparisons and I make no more than a gesture to the ethnographic record. In general, these are societies typically referred to as “small-scale,” without centralized polities, whose technologies are based on root crop horticulture, with greater or lesser emphasis on fishing, hunting, and sago-processing. People’s perspectives are often heavily gendered; when I pointed out that it was a man who was gazing at the shells, I meant that to carry a gender inflection.

8. In this example, the question is addressed to the influx of shells and the constancy of their signification; it may of course be addressed to models of analysis. Consider, for example, Arizpe’s plea that anthropologists focus on “the dynamics of interculturality at different levels of magnitude: local, national, regional and global: (1996: 97), an appeal to scale. When she considers connotations of the global, however, she proffers a scale-effacing suggestion: “the new ‘globality’ is, in fact, a new ‘locality’” (1996: 89–90). She would find many anthropologists agreeing with both these observations.
Cultural landscapes

Let me put some landscapes in your mind’s eye. Leaving aside the coastline and island Papua New Guinea, there is great diversity on the mainland itself. Indeed, in some places the pictorial concept of landscape itself seems inappropriate. Forest and bush may press in on human settlement to the extent that it is impossible to get an overview at all—there is simply no overall vantage point. Elsewhere, by contrast, cleared land gives vistas over miles of empty man-made grassland or shows up dense settlement and cultivation. Local variations also mean that a place like Mount Hagen in the central Highlands may contain within itself some of the differences encountered on larger scale, as is to be expected from a technological regime of intensive cultivation that continuously cuts gardens from wooded areas also encouraged to regenerate.

Not all Papua New Guinean societies have that internal difference available to them. Alfred Gell comments on the unrelenting effect of living in a place where one could never get a view; one was always surrounded by “the tactile, scented gloom of the forest.” The difference between cleared and uncleared areas was restricted to village and garden, rarely affording a visual landscape more than a few meters. He remarks on similar conditions elsewhere in Papua New Guinea for the effect they have on iconicity in language; where auditory stimulation takes over from the visual, the sounds people make echo a landscape full of sound. There are other consequences.


10. Hirsch (1995c: 9–10) draws a contrast between two strikingly different attitudes towards the visibility of the landscape. Zafimanary in Madagascar (Bloch 1995) yearn for the panoramic view of the village set out clearly before them; when shamans from the Amazonian Piro (Gow 1995) gain a view of the landscape through dreams or other altered states they conceptualize trees and rivers as houses full of people.


12. Notably Kaluli (Schieffelin 1976; Feld 1982); Foi (Weiner 1991). These all happen to be “low production” regimes (see later) in which sago-processing has
Dances are often at night, or inside a house, and display is canopied as though it were taking place in a sounding chamber. The dancers themselves may be half concealed or you may only half-see them in firelight or torchlight. The audience in turn is drawn into the light shed by the fire or must crowd into the house where the performance is put on. There could not be a more dramatic contrast to the staged visual displays of those Highlanders who expose themselves to the midday sun on open air ceremonial grounds cleared for the purpose. The congregation is limited only by the size of the dance ground. There may be pockets of darkness, as in the decorations that conceal the dancer’s identity and the forest leaves that make him “dark,” but the overall effect is of a vista, and dancers often form a straight line precisely so that their number and extent is visible.

In these details we see how landscapes comprise environments of human activity. Their features are drawn into the orbit of people’s practices, and not least by regimes of economic exploitation. Social anthropologists working in Papua New Guinea have long been interested in the relative “development” of some landscapes by contrast with others. This was particularly stimulated by the opening up of the Highlands in the 1930s, and the discovery of its high density populations, and indeed in the 1960s and 1970s led to a Highlands-centric ethnographic view of the island about which colleagues have been complaining ever since. As we shall see, however, that centrism is not restricted to anthropologists.

We are dealing with obvious differences between regions in the scale of human activity when it is measured in terms of land use, impact on vegetation regimes, and so forth. Within regions we find micro gradients of those same differences in the mix between hunting / gathering and sago-processing and the cultivation of root crops, often registered in the size of settlements. One such scale is

an important economic role, but I do not want to make too much of such dimensions.

13. See Gell’s drawing of the Umeda dancer (1975: 181), and Feld’s photograph of the half-seen Kaluli dancer (1982: pl. 7)

14. These distinctions can be repeated at other scales; thus among the groups on the Bosavi-Strickland area, there are observable micro differences between regimes based on greater or lesser dependence on sago, hunting, and so forth.
population density. Many sago-processing regimes support in the order of five to six persons—sometimes down to one or fewer—per km². Elsewhere, mixed taro and sweet potato regimes may support populations ranging from eight to sixteen persons per km². In the central Highlands, intensive sweet potato cultivation leads to densities in places well beyond one hundred persons per km². Roughly along this scale, domestic pigs increase in number and importance. One can construct gradients here in degrees of resource exploitation and transformation.

This is one anthropological understanding of the concept of culture: the workings of human activity as such. Whether one talks of economic effort or ritual relations or horticultural techniques, culture is a register of human enterprise. The effects of that enterprise vary. If we say the consequences are measurable “on” the environment, we mean that what we call “environment” becomes the measure provides a scale of sorts—for the extent of activity. In these Papua New Guinea examples, scale is evident to the observer in the contrasts between high and low production regimes and in changes in the area of land brought under cultivation or the population it can support, features that become observable from an overview of the whole country. In addition to that: in extended as opposed to restricted landscapes, “scale” may become locally or “culturally” visible. In this sense, land exists as a culturally salient environment for Hagen people, that is, as one in terms of which they construct scales themselves. As we shall see, through its products land gives a measure of its own extent and fertility. These in turn measure the scale of an individual’s enterprise, as when people line up the pigs they have reared (figure 1 shows pig stakes in readiness). But this has introduced a second sense which anthropologists give to the concept of culture.

Here culture lies in the value which people give to things and the concepts through which they express it. It involves the facility for imagining one’s own conditions of life. Scales, whoever constructs them, are thus cultural artifacts. At the same time, the observer would not give any scale to the facility itself: culture lies in the repetition or

---

15. For examples of comparative work on population densities, see Modjeska (1982: 53), Hyndman and Morren (1990: 17), Kelly (1993: 33).

16. The causal relationships are not, however, straightforward, see Lemonnier (1993).
replication of ideas, and what gives a culture its internal richness are the different junctures at which specific values are repeated and thus recognized or encountered over and over again. This is the sense in which cultures behave as self-referential systems.

Across Papua New Guinea, for example, ideas about energy and vitality are frequently linked to alternations in body states over time or in the pattern of events. The body indicates the relative expansion and contraction of activity. This expansion and contraction itself occurs in all kinds of contexts, themselves neither large nor small. There may, for example, be periodic renewal of the vitality or fertility of plants and animal life through rituals which gather together people otherwise scattered over the landscape. Or people display their ability to concentrate energy within themselves and then disperse it again, as a clan may celebrate the nubility of its daughters before sending them off in marriage. In order to effect the display, the preceding period of growth and accumulation will be marked by behind-the-scenes activity; the shut house or encircling garden fence are much repeated images of enclosure. Only what is kept hidden will grow. The “initiation” process which in many societies (not Hagen) marks the passage to maturity invariably involves seclusion and secrecy of a kind. This leads to a (culturally) salient inference: what you see in public or on the surface of the skin is the effect of growth that has occurred elsewhere. “Display” is the revelatory moment at which that is communicated or imparted to others.

In Hagen this moment is captured in women’s routine act of digging tubers out of the ground in order to feed people—they are around her in her mind so to speak—or the unpacking of an earth oven. The success of those occasions where people gather depends both on a local apprehension of a scale effect, in that the more people the more vitality is displayed by the hosts, and on a sustained analogy, between concealment and revelation and between growth and flow.

17. See especially Hirsch (1995b) on the Fuyuge of the Papuan highlands. His argument about the alternative modes of description which Fuyuge draw upon in recounting ritual activity (at once specific and event-filled and generalized and timeless) gives a temporal cast to the contrast between scale-sensitivity and scale-insensitivity.

18. Biersack’s original formulation (1982) has been substantiated in many other contexts since (e.g., O’Hanlon 1989).
that does not depend on scale at all. And that analogy can be replicated over and again. Thus, the men’s house which draws people to the ceremonial ground is also the conceptual source of the wealth that will stream from it, in the same way as the man’s own head is regarded as the fount of his inner, secret prowess. The head may become the focus of enlargement, an object of adornment centered by the plumage above as well as the aprons below, a position which is sometimes repeated within the adornments themselves which have their own centerpiece. The relationship between revelation and display was also in the past repeated between the sexes, it being men who “displayed” and women who, bar special occasions, were excluded. When a woman in an enclosed garden is engaged in domestic production, this is a private and secluded domain of affairs kept from the public eye, in the same way as shells are hidden in the men’s house for private deployment after a display.

In a series of associations of this kind, we might say that the analogies have a self-similar quality to them. While across Papua New Guinea the relationship between growth and flow, concealment and display, concentration and dispersal, center and periphery, is played out in different transformations, there are also striking continuities (cf. Hirsch 1995a: 65). Many Papua New Guineans would recognize the image of vitality and growth in the Hagen simile of people thronging a ceremonial ground being likened to birds flocking to a fruit tree or, for that matter, to feathers fringing a headdress. The analogies on which such imagery is based flow across contexts. But where has the environment gone?

I have suggested two ways in which social anthropologists consider the concept of culture. One refers to human activity, to the organization of life and livelihood, whose consequences have a scale effect. It is scale-sensitive. Here we may imagine the environment just as landscapes have been imagined, as showing the impact of or limits to human enterprise, and as offering enablement to and constraints on it in turn. The environment in this sense is definitively “outside” or “in interaction with” human activity; or rather, it is everything that

19. See the photograph of the feathered plaque being inspected (Strathern 1997).

registers the effect, and thus the extent or degree of that activity. From a second understanding of culture, which anthropologists have in the past glossed with terms such as world view, ethos, or webs of significance, I take the extensibility of the imagination, and have focused on one characteristic, the fact that people’s imaginings observe no scales. They are scale-insensitive. Analogies and values retain their relationships—equations or ratios between diverse elements—and thus their significance, across different domains of life regardless of the dimensions of an event; here the sense of an outside environment may disappear altogether.

I have hinted that Hagen people would share both understandings, at least to a degree. But in order to give full cultural weight to these Hagen understandings, and thus deal with them in their own terms, we need to approach them through other materials, and I choose materials from elsewhere in Papua New Guinea.

**Environments inside and out**

It is almost tautologous to say that culture in the first sense, as the workings of human activity, requires exchange with the environment, a cycling of resources through the human community and back again. This is a condition of survival.

The Mekeo, who live along the reaches of the Biaru River in lowlands Papua New Guinea, have a wonderful diagram of this process in their village layout (see figure 2). Clubhouses of the resident clan chiefs are built at each end, while domestic dwellings and other structures have been erected in parallel rows. In the center is an area cleared of permanent features. The village is separated from the bush beyond. Indeed “village” and “bush” are conceptualized as distinct domains of activities and powers, and a well-defined croton hedge bounds the periphery of the village. The bush yields an array of resources, including garden food and hunting products.

---

21. Including the registration of “no effect,” as in the view of unchangeable natural constrains.

22. For an excellent review, see Ellen (1982)

23. The so-called “Bush Mekeo” of Central Province; I draw principally on Mark Mosko’s (1985) original ethnography referring to the 1970s.
Figure 2. Schematic plan of the layout of a Bush Mekeo village (from Mark Mosko Quadripartite structures, 1985: 26, fig. 2.1). (Reproduced by kind permission of the author and Cambridge University Press.)

What is beyond the village is thus brought into the village for consumption, and wastes are thrown back into the bush. But Mekeo do not just draw a difference between village and bush: each is further divided, creating a series of zones that determine everyday activities. Food is brought from the remote bush to the village, not to the center but to the peripheral dwelling houses where it is eaten in the evening, while the rules of waste disposal mean that in the early morning each villager makes his or her way to the bush, not the remote bush but the peripheral bush just over the fence, to empty their abdomens. When they return, they clean up the village, sweeping refuse into the center plaza. The rubbish is piled up in the center, before being carried to the edge of the village and dumped where human beings have also evacuated. It is as though the abdomen of the village were cleaned out too. Indeed, the central plaza is called just this: “village abdomen.” What we might call the activity of extracting materials from the environment and then consuming them is thus visualized by Mekeo as a perpetual passage between bush and village, in which the village both consumes food and gets rid of waste, just as the human body does. The bush in turn yields produce and receives waste. The village
models, we might say (Mekeo have already said it in other terms), “culture” as the workings of human activity, and divides the world beyond the fence in the same way as the human habitation is divided.

But what might Mekeo imagine as the environment here? There is no measure of human activity beyond the activity itself. That is because these people have, as it were, focused on the exchange rather than the products. It would seem to be the flow of resources that interests them, imagined by them as a perpetual traveling back and forth. The result is that whatever the observer might want to call the environment folds back on itself. And that in turn releases countless possibilities for imaginative extrapolation. The further result is a flow of analogies.

Consider the village plan again. We saw that waste is separated from produce within the village, even as the source of produce in the remote bush is separated from the adjacent bush where waste is deposited: the relationship between immediate and surrounding bush is repeated in the relationship between village periphery and village plaza. On the surface, it looks as though these indicate scale, degrees of distance from a center that calibrates human activities. Certainly, the central plaza is used for feasting and other occasions when guests are brought into the village. However, Mekeo do not conceive of this as the center of a center or as the inmost part of the inside. On the contrary these zones fold in on themselves in interesting ways.

The relationship between bush and village is not quite as “Euro-American” observers might imagine: it is the bush that is categorically “inside” and the village that is categorically “outside.” It is as though the environment were within. To make this image intelligible, we have to think in terms of persons and their social identities.

Imagine the bush as the closed territory of the tribe, an endogamous unit composed of people who are all related to one another; internal divisions within the tribe (into clans) means that people are also by virtue of clan affiliation rendered different from one another.


25. My term for a discourse derived largely from twentieth-century North American and Northern European cultures to which the language of analysis (such as the one in which this essay is written) belongs.
Members of at least two clans live in each village, which is in this sense socially heterogeneous. Moreover, each village full of people is open to people from elsewhere with whom they have dealings and traffic of various kinds. As a place where people meet with, entertain, and visit others, then, the village is in social terms a microcosm of a heterogeneous “outside” world. Think now of the alimentary tract through the body as taking in food from the outside, as Euro-Americans would say, and returning it there, as though those inner chambers were exposed to the outside.  

26 Turn this imagery inside out, and think instead of food coming from the tribal territory as coming from a socially homogeneous, inside, place, and being brought outside into the socially heterogeneous village before being returned as waste to the inside bush. When Mekeo refer to the central plaza as the village’s abdomen, they are envisaging this plaza as an “inside” place homologous to the territory beyond the village. A qualification is that since the village as a whole is an “outside” place, the center (the “abdomen”) has to be the outside’s inside (Mosko uses the phrase “inverted outside,” 1985: 27). And if the village abdomen is an inversion of (village) “outside” space, the area over the fence is correspondingly an eversion of (bush) “inside” space.  

27 So the bush immediately adjacent to the village is distinguished from the more remote as a kind of everted region (“everted inside”). The relationship between inside and outside presents each as a version of the other.

This Mekeo attention to the flow of resources across different zones does not indicate an ecological model of human-environment exchange. The interchange is between “places” endowed with distinct

26. Mekeo also imagine degrees of openness, which they monitor through changes in body shape: both men and women undergo regimens of body fattening and fasting, going from less open to more open states. According to Mosko (1983) the way in which they perceive the body as open or closed to the outside world replicates the way in persons are open or closed to influence from others. Bodies thus become registers of their interactions with persons from other clans and villages.

27. “By virtue of the daily transfers of objects between village and bush,” writes Mosko (1985: 25), “outside and inside domains are bisected by a reversal or inversion of each, such that the outside village has its own inside place (i.e. an inverted outside) and the inside bush has its own outside (i.e. an everted inside).” I draw on this example in a further discussion of inside and outside places (M. Strathern 1998).
social identities. Rather than imagining an “environment” which registers human activity, Mekeo invite us to imagine a landscape of different zones (“places”) which elicit different actions from people. Indeed, the bisected dualities are the spatial beginnings of a complex series of conceptual operations by which Mekeo visualize the inter-folding nature of social relations. The zones do not in themselves point to a scale based on distance, as a Euro-American might extrapolate from the notions of inside and outside. On the contrary, they are the basis of a series of analogies that disregard scale. It will come as no surprise to learn that the Mekeo body is bisected twice, divided into four regions, so that its own ingestion and egestion follows a pattern similar to that of the village, as does the whole Mekeo tribe. The clans to which I have referred compose four specific segments of the tribe between whom there are specific rules for flows of cross-generational transfers and intra-generational marriages.

Calibrations

In commenting on the bifurcation in the anthropologist’s two senses of culture, the one scale-sensitive and the other scale-insensitive, I have imagined analogy as a kind of counterpart to scale itself. Both constructs offer possibilities of measurement: scale offers dimension and analogy offers comparison. One might be forgiven for imagining them as belonging to separate traditions of knowledge. A Euro-American perspective includes interest in recording the extent of human achievement—what seems quintessentially an outsider’s view—whereas Mekeo and other peoples construct what to outsiders seems like a symbolic universe replete with insides and outsides and flows of persons and things. Yet in the same way as Euro-Americans use many analogic devices in their quantifications, such as the dial or thermo-

28. I use “place” here with the connotations Casey (1996) bestows on the term.

29. They concern kinship and relationships, reproduction and marriage, supernatural powers, chiefship, and so forth. The fourfold spatial layout of bisected dualities is replicated over and over again in the involutions of social relationships.

30. See, e.g. Donald (1991: 335f) on “analog models” of time and space; analogies measure one dimension of reality in terms of another, as temperature may be recorded (measured) by a column of mercury. One may also think of relationships between values held stable in the form of an equation or ratio.
meter, so does dimension enter into the way Melanesians draw comparisons.\textsuperscript{31} There are peoples who make most discriminating calculations of the number and size of items at their disposal, measurements evident in the exchange of things against one another and based on finely attuned notions of \textit{equivalence}. There is also the reckoning of \textit{compensatory values}, the idea for instance that one item (person) grows at the expense of another.\textsuperscript{32}

In some areas of Papua New Guinea,\textsuperscript{33} demonstrations of vitality may appear as a male ideology of virtue which rates men’s activities in production and exchange a sacrifice, a matter of spending their energy on others, so a man can expect a gradual depletion of a life-force as it is imparted to the next generation, one body growing large as the other shrinks. There is a measurement of a kind here. As men grow old their life-force flows into others, so that the diminishing vitality of seniors is measured in the increasing vitality of juniors. The more vigorous the younger men, the more the older men have given evidence of their virtue in passing their vitality on. This is an analogic calculation between states imagined as the inverse of each other. A one-way flow across generations means that seniors are becoming empty, so to speak, as juniors are filled up. We can see a similar analogic calibration in the reciprocal exchanges of Mount Hagen, although instead of the process taking place over a lifetime, it takes place at much shorter intervals, in which men alternately put themselves into the position of being now donor and now recipient.\textsuperscript{34} While from one point of view each is an alternative version of the other but at different temporal moments, at the same time each is also the measure of the other. The more the recipient receives the more he is challenged to give next time, and that occasion then becomes the

\textsuperscript{31}I use “Melanesian” rather than (in this case) Papua New Guinean as the counterpart to “Euro-American” discourse.

\textsuperscript{32}Argued with elegance by Biersack (1995).

\textsuperscript{33}I base the following description largely on Etoro (Kelly 1993).

\textsuperscript{34}What Kelly (1993: 146, my italics) says of life cycle processes in Etoro could also be said of Hagen exchange: “The life-cycle processes of conception, growth, maturation, senescence, and death are attributed to the acquisition, augmentation, depletion, and loss of life force in these transactions [such as sexual intercourse]. In each instance, a recipient’s growth entails a donor’s depletion, such that one individual flourishes while another declines.”
retrospective measure of his first success. The obverse is the ability to
deplete through injury.

Now whereas one body may afford a visible measure of another
body, in the Hagen case measurement also lies in the visible wealth
that passes between persons. Here the receiving body, so to speak, is
rendered as large as the size of the gift. It is under these latter con-
ditions that local conceptions of scale become significant. In social
terms, the prominence of a man is measurable by the extent of his
network, and networks extend with the gifts. People start making
more of their calculations of size and number. For they are not just
measuring the growth of persons through quantity of resources; they
also measure certain resources by other resources—how many pearl-
shells for how many pigs. If land contains so many pigs and so much
garden, the two quantities reflect each other. The size of the garden is
planned in relation to the future demands on the pig herd. This is one
of the ways in which scale becomes visible: land gives a measure of its
own extent and fertility in its products (see figure 3).

However, these scaler measurements depend on analogic ones
similar to those I have just described. Let me elaborate. Ethno-
graphers of the central areas of the Papua New Guinea Highlands
tend not to talk of life-force; they do talk of ‘fertility’ embedded in
persons and pigs, and inland. It is as though it were not just through
the rotted bodies and body fluids of their buried ancestors (Harrison
1988 quoted by Tilley 1994: 58) that land is made fertile, but as
though life-force were now in the soil. In any event, land becomes
conceived as a source of fertility. Evidence lies in turn in what the
land grows, and it is regarded as growing people as well as pigs and
plants. They all become carriers of land, portable manifestations of it,
so that when you see a pig you see the food that the land has grown.
These are analogic measurements. And there are others. One can
assess soil quality by the growth of trees, tall trees also being analogues
of male potency and ancestral support, while high crop yields and fat
pigs are themselves indicative of ancestral favour. Fertility is thus given
a measure of sorts. It leads to action; people estimating what gardens
they must plant, given the expectations of a changing pig population,
become conscious of what the land can support. That feeds back in
turn into measurement of people. The amount of wealth a man
attracts becomes an element in his very capacity to exchange, and thus
his assessment by others; clans measure themselves, competitively, by
the size of the war reparations they can muster and the amount of resources these indicate. We are back to scalar measurements.

In the 1990s, Hagen residents talked of (recent) population increase. They experienced their landscape—what they look out over—as overcrowded; complained that there were too many houses too visible all at once. Conversely, I heard it said that the wild spirits that once inhabited desolate places are now frustrated at having nowhere to hide. But land is also short because it is a measure of resources; through cash-cropping and vegetable marketing, land has become a source of money. One place, near Hagen town, is illustrative. Here, the fertility of the soil is made visible by the abundance of the fresh vegetables it yields, and thus income it earns; this in turn has had a direct impact on population, since clansmen and diverse relatives from other parts have flocked to build their houses and gardens there, a pressure the inhabitants relate directly to fertility of the soil. They are pleased that they should have attracted so many to them. While an analogic relationship between human and non-human fertility is thus held constant, resources are also being compared with other resources and a direct relationship perceived between scale of the influx of people and scarcity of land. So people attempt to make the land yield more. There were some old gardens being redug for potatoes to sell to the fish-and-chip shop in Hagen town. As the fine, black peat soil was turned over, the owner poured out several bags of white chemical fertilizer to ensure a really lucrative crop. The more money spent on land, the more it should yield.

Compensation

What should we make of the fact that Papua New Guinea has apparently become a nation of landowners? The term “landowner” (pidgin landona) is used by nationals in negotiating royalties on minerals or timber extracted from the land. But some go much further, generously applying their claims to loss of access to all sorts of resources such as enjoyment of future development. We might think that this reflects some primordial or spiritual value attached to land itself; or might see, in their confrontation with mining companies and

35. Visited in 1995; I am grateful to the British Academy for the research grant which made the visit possible. These observations are expanded in some of the essays in M. Strathern (1999).
other outside interests, the shrewd grasp that Papua New Guinea politicians have of the wider environment of competitive world markets. While nationals frequently evoke tradition (“custom”) in appealing to the depths of their association with land, they are also calling themselves “owners” in an international language that gives them negotiating power. It would seem that the term “landowner” is only about ten years old, and has emerged hand-in-hand with a new concept of resource compensation.

In 1994, the Law Reform Commission of Papua New Guinea embarked on a study of compensation and resources in relation to land, and I draw on one of the contributions. It also happens to be one of the most incisive pieces of writing about contemporary development in the area I have seen. In it, Colin Filer describes the brief life of the concept of landowner.  

The background is simple. Witnessing the inroads of foreign commercial ventures, of which the most visible are land-based mining and logging, the thought of company profit prompts people to construe the counter-idea of recompense. By staking a claim to land through the idiom of ownership, local politicians and businessmen are sometimes able to persuade companies that they should be entering into some kind of reciprocal transaction with them. They may argue that what is at stake is nothing less than social welfare. While an economist might call this the opportunity cost of lost subsistence production, nationals voice their claims as “compensation” that will ensure their future development and security. People imply that the loss of future benefit is like the loss recognized in Highlands compensation payments, whether these were for bodily injury arising from warfare or personal body payments for nurture. A fitting cultural appropriation, an anthropologist might say, landona is a hybrid term, appropriate to the end of the twentieth century, produced both by the newer demands of post-colonial economics and by attempts to con-

36. From Filer (1997); there was an older circumlocution (papa bilong graun) which did not carry quite the same resonances.

37. I deliberately put it this way round: evidence of what others have attracted to themselves (profit) seems to trigger the counterclaim. Filer notes how the idea of customary landowners has also generated the idea that the salient social grouping must everywhere be the “clan.”

38. Filer is quoting here from the Lihir Mining Area Landowners Association.
serve local communities through appeal among other things to reciprocities in relationships. Traditional values meet world capitalism.

Colin Filer would have little of that. He flatly states that what is locally promoted as a division between indigenous economic principles and those that govern modern capitalist enterprise obscures a crucial link. Current use of “compensation” as a “concept in the politics of national resistance to the world economy” goes hand-in-hand with “the growing dependence of the national economy on that specific form of compensation which economists call ‘resource rent.’” He comments that the lack of realism in demands for compensation should not lead us to suppose that they are founded on an incorrect assessment of the [current] forces driving the economy.” For the popular [Papua New Guinean] perception of “development” as the collection of a resource rent reflects the real historical tendency for an ever-increasing proportion of the national income to be obtained in this form [from outside companies]. (Filer 1997: 172)

Colin Filer refuses, then, to agree with the actors’ current equation of compensation and tradition—and not only the local actors. Expatriate developers may be doing their best to package their relationships with landowners in forms of caring reciprocity, including “traditional” compensation agreements intended to function as signposts to their mutual obligations, while, Filer adds, indigenous landowners are seeking their own private ways and means to remove elements of balance from the relationships and either ask for favors or resort to coercive hostilities!

That aside, and agreeing that payments were always made for damage done to bodies in the context of reproductive payments, he argues that there was no real precursor in “custom” to treating land in this way. Despite its appeal to bodily compensation, resource com-

39. He points to people’s (developers and landowners alike) failure to address the issue of power: “Papua New Guineans may place a very high value on the possession and circulation of money but still deny that money and power may properly be used in pursuit of each other. And this denial, I would argue, is due to the fact that ‘power’ is not (yet) conceived in the Western manner, as something which, like money, can be a legitimate form of personal property, but in the ‘customary’ way, as something which is properly avoided, dissipated, multiplied or neutralised by the efficacy of moral agents” (1997: 181).
pensation is new. Moreover, when one looks into the demands, claims to social embeddedness seem to evaporate. The demands, negotiations, and payments are contained within a matrix of landowner-developer relationships that are hard to pin down:

[For] when we try to investigate or conceptualise the substance of their mutual conduct, we may find that we are no longer dealing with any actual pattern of relationships between real individuals in concrete social settings, but only with snatches of rhetoric which, like the abstract opposition of ‘landowners’ to ‘developers’, are applied to ‘development discourse’ in a certain type of public forum. (Filer 1997: 174)

We are left with the rhetoric. So where is its power?

Now Filer’s critique depends on acknowledging scale. He looks, for example, to “actual” social relationships to substantiate Papua New Guineans’ claims about social relations, an exercise that requires discrimination between different orders of fact. Indeed, that is the power of his account, a scale-sensitive attack on the way people insensitively run things together. They ignore the difference between interpersonal and interinstitutional arrangements and observe no scale at all in translating, as they do, sacred landscapes into lucrative ones. Nonetheless, it is also here that we see why the idea of compensation has such runaway effect.

The demands draw on both dimension and comparison. On the one hand, the sums seem exorbitant to developers, and indeed may be constrained only by what nationals imagine the developers can pay; on the other hand, both sides are caught up in a spiralling set of constructs or images as the nationals draw in all kinds of comparisons to make their point. The very concept of compensation has undergone a kind of inflation. Not only must the same satisfaction be obtained at increased cost, but there are new arenas for satisfaction and more reasons for demanding it.

One could thereby talk of an inflation in the range of activities to which the concept of compensation applies. It is not just in dealings with outsiders that Papua New Guineans try to extend notions of recompense from body payment to resource rent. The same is happening internally. To return to Hagen again: the Pidgin (Neo-Melanesian) term “kompensesen” covers a wider range of payments
than any indigenous category did.40 Hageners linked recompense for bodily harm with recognition of the energy and work that went into nurture; not only is an implicit category now made explicit but it has expanded to include interactions of all kinds. Where before separate terms discriminated between different payments and different ways of discharging obligations, the new mode shows a generic tendency. It has the potential to cover almost any negotiation of relational responsibility simply because the fundamental idea of recompense for bodily exertion can be so widely applied. All that has to be kept constant is reference to the body and expenditure of resources. This expansion (of these ideas) is facilitated by money, and in Hagen nowadays numerous relational transactions can be conducted through the idiom of money payments. In relation to resources, and in situations where quantity becomes a dimension of value, this leads to one very simple outcome. Whatever commands a price also triggers an analogic calculation. There is a new interest in land as the object of investment that commands a price, for the wealth (company profits) extracted from it can be taken as evidence of the “wealth” (ancestral fertility) that has gone into it.

There is inflation, too, in the way in which the concept of compensation has spread across Papua New Guinea. The reader will recall the restricted landscapes I evoked at the beginning, societies in which there was nothing equivalent to the scope of Highlands (as in Hagen) political transaction and where land is not objectified in the same way in terms of its products.41 Yet there, as elsewhere across the country, the human body is held to reveal in its activities inner resources of some kind or other. This notion keeps constant pace with notions of expenditure. In short, the Hagen-type idea that extracting wealth from others matches what has been extracted from one echoes those other growth / depletion regimes focused on the body. The significance of recompense (i.e., taking in and giving out) remains in place. Conversely, what applies to the vitality of persons also applies to the fertility of land. By the very token that fertility, like vitality, is a hidden quantity until it is revealed, it follows that anything

40. See A. Strathern (1993) on differences here in Hagen and Duna (to whom I refer briefly below) usage, and see Modjeska (1982: 55).
that the land yields—oil, timber, gold—can be taken as evidence of inner resources.

Colin Filer refers to an area where local people “blend received notions regarding powerful spirits with rumours regarding the finding of oil resources, in such a way as to move from a picture of a sacred landscape, whose fertility must be preserved for the future, to a picture of an exploitable landscape available for manipulation by a company” (1997: 172). Here, we see the power of analogy-making that observes no scales. For those leaps and extrapolations are not just vague rhetoric; it is the capacity to jump scale which makes people willing to take on “new” things in the first place. So what might have been initial conditions for this ubiquitous state of affairs?

The kind of inflation that characterized 1960s Hagen was both scale-sensitive and scale-insensitive. Here we are thirty years on. What we see today is possibly one outcome: the bifurcation that Filer describes in Papua New Guineans’ attitudes towards resource-compensation. On the one hand, it is scale-insensitive: landowners attempt to extract recompense from outside interests through appeal to general community welfare, keeping constant the ratio between wealth and strength. On the other hand, very scale-sensitive indeed, they compete with their peers in the quantity of resources they handle, on the basis of a thoroughly economistic rationing of their own time, money, and patronage. As Filer puts it, “landowners” seek deliverance from the same web of social obligations which serve to justify and mobilize support for “compensation” claims’ (1997: 156).

You might think I have been singularly careless about letting my own field area, Hagen, occupy center stage in this account. The Highlands—let alone Hagen—is not Papua New Guinea. Indeed, Filer states that there is little evidence that “compensation” was a traditional form of material transaction in other parts of Papua New Guinea. To the contrary, and this is the point, nationals may nowadays point to

42. The Duna; the quotation is from Stürzenhofecker (1994: 27). Duna are a border Highlands society with labor-intensive gardening practices but a relatively low production economic regime in Modjeska’s (1982) terms.

43. I have underplayed the role of feelings and emotions as a factor in compensation satisfaction.
the Highlands as the origin of the present pan-island category.44 If Highlands-style compensation was a particular version of a more general phenomenon, a reproductive model of body expenditure, it is a version that has become something of a norm. At the same time, the basic image of body process as a ceaseless giving out and taking in of resources was itself widespread. These were not just traditional ideas waiting for modernity. They comprised the creative set of conditions for people’s capacity to move along two different trajectories at the same time, now making scale relevant to the size of things and now making it not. For that reproductive model, embracing all manner of bodily activity, was able to cross scales, that is, it could be replicated in all kinds of contexts. Perhaps, indeed, this insensitivity to scale was in certain systems the doorway to letting in its opposite—sensitivity to scale expressed in Highlands-style reckonings of gain and profit.

In certain systems: I have just been focusing on one. Hagen interest in size took a particular transactional form. People measured what they put in by what was taken out, and their own power to extract wealth was measured by the power of those who had extracted it from them in the first place. Such measurements of human activity were “external” to one or other party by virtue of the distinct social identities of each: as we have seen, recognition of one person’s body expenditure came from another. The accompanying concept of “compensation” entailed the further calibration of resources by resources. And that particular idea of recompense could translate the perception of new and unprecedented possibilities into the widespread body idiom of vitality, growth, and depletion. No wonder the nation of landowners do not pitch their price according to some preconceived value of the land but scale up their demands according to the developers’ ability to pay.

Conclusion

This is not the juncture at which to reflect on the inflationary components of the anthropologists’ double construct, “culture.” Its

44. Filer himself points to two historical pushes from the colonial state; one was the payment of war damages compensation after the Second World War in many coastal areas, while the second was the administration backing given to Highlands war compensation payments to encourage peacemaking between previously warring groups that I have been describing here.
current ubiquity needs no further comment. All that remains to be added is that if its double senses suggest a dualism, let me repeat that this pair (the two senses of the concept of culture) is not binary, dichotomous, or dialectical. Rather, each element has its own complex trajectory. For the sake of the present topic, I have characterized the two trajectories as sensitivity and insensitivity to scale change. And that is because I want to say two things at once. Both of them are rather obvious, but worth reiterating. On the one hand, scale matters: to perceive the effects of human activity on a world imagined as an outside or encompassing environment is to take responsibility for such activities. It is equally the case, on the other hand, that scale does not matter: imagining the dimensions of that responsibility draws, as it were, the environment within ourselves. It is also a precondition for drawing within our compass societies such as those of Papua New Guinea, not “small-scale” at all in terms of the analogical insights they afford.

Let me condense this argument in a final pair of images, and return to the question of unpredictability. Why should Hagen-type (Highlands) compensation have become as it has in recent years, a kind of Papua New Guinean norm? If one can trace “compensation” back to “inflation,” then what were the initial conditions for that?

Part of the longstanding technology of production (and still in use) was the string bag or “net bag,” used for transporting crops from the gardens that feed both human beings and pigs. Similar working bags to that depicted from Hagen (see figure 3) are found in many areas, including the Telefomin described by Maureen Mackenzie. The two areas present different landscapes and different regimes of horticulture, these being based on taro in Telefomin and sweet potato in Hagen. Taro generally supports a lower population than sweet potato and a whole language group might be no more than the size of one of Hagen’s dozens of internal political units.

45. The Telefomin material is taken from Mackenzie’s (1991) study of peoples from the Mountain Ok region of Papua New Guinea mediated through the particular attention she pays to the string bags that women make.

46. In the Mountain Ok region the entire population amounts to only 30,000. There are internal variations in reliance on taro and sweet potato, in the part that hunting and the collecting of wild foods plays, in soil quality and fallow cycle, and in the densities of populations so sustained. Indeed, the Mountain Ok area can be divided into internal regions according to differing horticultural
Figure 3. A young girl, soon to be married, carries back from the gardens two string bags of sweet potatoes, to feed both pigs and family; Mount Hagen, 1967. (Photograph by the author.)

regimes on a local basis—it even has its own “Highlands,” as it is known in the literature (Hyndman and Morren 1990). Variation between regions internal to the Mountain Ok thus repeat on a small scale the kind of variation one finds between the area as a whole and other parts of Papua New Guinea.
At the same time, these string bags contain a very similar spectrum of values. In Telefolmin, women carry everything from babies to taro; taro plants are likened to children who have to be coaxed to grow, just as the sweet potato vines picked for further planting in Hagen are a reminder that people are planted in clan territories. Bags taken empty to the gardens each day return full. Hagen women thus carry on their backs both the yield of the land and the instrument by which that yield contributes to the rounding of the body’s contours. 47

There is a second set of initial conditions here. In neither area do men wear bags in the manner of women, any more than men carry out the range of women’s tasks. However, one could not predict from these pieces of information how men actually separate themselves off from women or for that matter the form that their distinctiveness takes. Rather, in the way in which men both separate themselves from women and constantly make comparisons of their respective powers, we see another interesting conjuncture of trajectories. The two conjunctures behave differently in the two areas; they have, we might surmise, taken different directions.

Telefolmin men do sport bags but wear them on the nape of the neck or shoulders. Men use them primarily for carrying hunted meat and personal possessions, and whereas women take pains in manufacturing these bags (they make both men’s and women’s), men attend to ways of decorating what then becomes special male attire. Grades in the Telefolmin male initiation cult are marked by the type of feather men attach to the outside. Hagen men do not wear string bags at all. 48 If one were looking for an analogue, it might be the feathers that Hagen men attach to their wigs, which they ordinarily cover with a string covering referred to by the same name as the women’s string bag. Here we encounter a significant divergence. The Telefolmin feather-covered initiation bag signals promise of what it holds within. Like the Hagen headdress, it is both a display and points to the containment of secrets. But what in addition Hagen men have within themselves they also objectify as the external wealth of their houses and the size of their pig herd. They have no need to wear

47. On the swollen form of belly / bag, see Mackenzie (1991: 143).
48. Apart from little “pockets” or tobacco pouches for personal items, or bags carried on special occasions in the context of all-male rituals.
containers on their persons. And there is no metaphorical limit to what they may thus “contain.”

Of these two modes of male distinctiveness, only the latter seems to have become the basis for present-day ideas about recompense and “compensation.” The modes are not equivalent. Telefolmin men conserve an analogy between the reproductivity of women (the string bags) and the vitality of men (the feathers); Hagen men both keep a similar analogy and turn it into one in which quantity also plays a key part. The Hagen man in figure 1 does not offer a complete picture in himself: he is completed by the amount of shells or pigs or money he can command, in short, by the scale of his resources. That external measure is realized through a concept of compensation which, over the last sixty years, seems to have unfolded with great creative potential.

Acknowledgements (from original)

This paper is for Alfred Gell, who has illuminated many landscapes. My particular thanks to Kupi Kundil (Mrs. Oice) for letting me use a photograph of her as a young girl (figure 3). I am grateful for the comments of the Cambridge Department of History and Philosophy of Science on an earlier version, and in particular Simon Schaffer’s observations with regard to measurement. Mark Mosko’s elucidation of Bush Mekeo remains a source of inspiration. My thanks to Eric Hirsch for his comments. I should also add that this account presents several arguments made familiar, and in places controversial, by a substantial Melanesian anthropology that is not separately acknowledged here.

49. Epitomized in the regional contrast between vitality and fertility, or between initiation cults and ceremonial exchange, not developed here; for a sketch, see M. Strathern (1988).
References


Hughes, Ian. 1978. “Good money and bad: Inflation and evaluation in the colonial process.” In Trade and exchange in Oceania and Australia, edited by James Specht and J. Peter White, Mankind (Special Issue), 11.


———. 1998. “Social relations and the idea of externality,” In Cognition and material culture: The archaeology of symbolic storage, edited by Colin
Renfrew and Chris Scarre. Cambridge: McDonald Institute for Archaeological Research.


