# The Perception of the Environment

In this work Tim Ingold offers a persuasive new approach to understanding how human beings perceive their surroundings. He argues that what we are used to calling cultural variation consists, in the first place, of variations in skill. Neither innate nor acquired, skills are *grown*, incorporated into the human organism through practice and training in an environment. They are thus as much biological as cultural. To account for the generation of skills we have therefore to understand the dynamics of development. And this in turn calls for an ecological approach that situates practitioners in the context of an active engagement with the constituents of their surroundings.

The twenty-three essays comprising this book focus in turn on the procurement of livelihood, on what it means to 'dwell', and on the nature of skill, weaving together approaches from social anthropology, ecological psychology, developmental biology and phenomenology in a way that has never been attempted before. The book is set to revolutionise the way we think about what is 'biological' and 'cultural' in humans, about evolution and history, and indeed about what it means for human beings – at once organisms and persons – to *inhabit* an environment. *The Perception of the Environment* will be essential reading not only for anthropologists but also for biologists, psychologists, archaeologists, geographers and philosophers.

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# The Perception of the Environment

## Essays on livelihood, dwelling and skill

Tim Ingold




London and New York

*For Anna and Susanna,*
*in memory of my mother,*
*L. M. Ingold (1910–1998)*

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# Part I

# Livelihood

## Introduction

My focus, in the essays making up this part, is on the ways in which human beings relate to components of their environment in the activities of subsistence procurement. I draw, in particular, on ethnographic studies of people who make their living primarily by hunting and gathering. In the existing anthropological literature on hunting and gathering societies, questions of how people interact, practically and technically, with the resources of their environment in obtaining a livelihood tend to be treated separately from questions of how their lifeworld is imaginatively 'constructed', in myth, religion and ceremony. The former are typically addressed in naturalistic terms, often by way of comparison with the foraging behaviour of non-human animals, and drawing on the same frameworks of concepts and theory as have been employed by animal ecologists. The latter, by contrast, are considered suitable topics for cultural analysis, concerned as it is with the ways in which the environment, and people's relations with it, are represented in consciousness. I believe that this division between naturalistic and 'culturalogical' accounts is unfortunate, in that it takes for granted precisely the separation, of the naturally real from the culturally imagined, that needs to be put into question if we are to get to the bottom of people's own perceptions of the world. Starting from the premise that ways of acting in the environment are also ways of perceiving it, these essays suggest how the division might be overcome.

I set the scene, in Chapter One, by comparing the accounts that Western biologists and indigenous hunters give of the behaviour of caribou during episodes of predation. I show that the scientific authority of the former account, as well as the anthropological understanding of the latter as fitting within a culturally specific cosmology, depend on a two-step movement of disengagement that cuts out first nature, then culture, as objects of attention. I then set out to retrace these steps in the reverse direction, in an attempt to replace the dichotomy of nature and culture with the synergy of organism and environment, and thereby to regain a genuine ecology of life. The inspiration for this move comes from the work of Gregory Bateson, whose ideas are introduced through a contrast with those of Claude Lévi-Strauss. Both authors set out to demolish the distinction between mind and nature, but whereas for Lévi-Strauss the mind recovers information from the world through a process of decoding, for Bateson it is opened out to the world in a process of revelation. This contrast is linked to two senses in which it might be said that novices, in learning to perceive the world around them, are furnished with 'keys to meaning'. The key could be a cipher or a clue. I argue that sensory education consists in the acquisition of clues, not ciphers, and that songs and stories – including stories of how

animals respond to the presence of the hunter – give shape to a perception of the world guided by this education. The knowledge grounded in such perception, I conclude, amounts to what may be regarded as a 'sentient ecology'.

In the following two chapters I argue, first, against the naturalisation of the hunter-gatherer economy under the rubric of 'foraging', and secondly, against the complementary claim that in the eyes of the people themselves, the environment they inhabit is culturally constructed. Chapter Two is a critique of attempts, under the guise of 'human evolutionary ecology', to apply models designed for the study of non-human foraging behaviour to the analysis of human hunting and gathering. This application results from a conflation of rational choice theory, drawn from classical microeconomics, with the theory of natural selection, drawn from evolutionary biology. In the one case hunter-gatherers are likened to 'economic men' who can work out their strategies for themselves. In the other they are seen as 'optimal foragers' whose strategies have been worked out for them by natural selection. These two characters fall on opposite sides of an overriding opposition between reason and nature, or freedom and necessity. A properly ecological account of hunting and gathering requires however that we dissolve this opposition, showing how people develop their skills and sensitivities through histories of continuing involvement with human and non-human constituents of their environments. For it is by engaging with these manifold constituents that the world comes to be known by its inhabitants.

In Chapter Three, I contrast this view, that hunter-gatherers' perception of the environment is embedded in practices of engagement, with the more conventional alternative that such perception results from the reconstruction of naturally given realities in terms of metaphors drawn from the ideal realm of culture. I develop this contrast through a review, first, of how certain tropical hunter-gatherer peoples perceive their forest environment. Secondly, I look at the way northern hunters, particularly the Cree of northeastern Canada, understand their relations with the animals they hunt. Thirdly, drawing on ethnographic material from Aboriginal Australia and subarctic Alaska, I consider how hunters and gatherers perceive the landscape. I conclude that anthropological attempts to depict the mode of practical engagement of hunter-gatherers with the world as a mode of cultural construction of it have had the effect of perpetuating a naturalistic vision of the hunter-gatherer economy. This vision of hunters and gatherers as 'living in nature' is closely tied to a certain notion of history, as a process in which human beings have gradually risen above, and brought under control, both their own nature, in the process of civilisation, and the nature around them, in the domestication of animals and plants. In Chapters Four and Five, I revisit this Western historical narrative of the human conquest of nature, and seek to replace it with an alternative more in keeping with indigenous understandings.

Chapter Four focuses on the history of human–animal relations, and on the transformation of these relations entailed in the shift from hunting to pastoralism. I argue that relationships between hunters and prey are based on a principle of trust, constituted by a combination of autonomy and dependency. The human–animal relationship under pastoralism, by contrast, is based on a principle of domination. The transition from hunting to pastoralism, therefore, is marked not by the replacement of wild by domesticated animals, but by the movement from trust to domination in the principles of human beings' relations with them. Chapter five continues the critique of the notion of domestication, and with it the dichotomy between collection and production, entailed in the notion of history as the human transformation of nature. In terms of this dichotomy, growing crops and raising animals are viewed as instances of production in the same way as is the

manufacture of artefacts. In every case, things are 'made'. Drawing on ethnographic studies of how people who actually live by tilling the soil or keeping livestock understand the nature of their activity, I show that the work people do does not make plants and animals, but rather establishes the conditions for their growth and development. The distinctions between gathering and cultivation, and between hunting and animal husbandry, thus hinge on the scope of human involvement in establishing these conditions. Moreover, growing plants and raising animals are not so different, in principle, from bringing up children. Contrary to the conventional wisdom that not only animals and plants but also children are 'made', through domestication and socialisation, I conclude that children, animals, plants and even – in a sense – artefacts as well, are 'grown'.

I return, in Chapter Six, to the theme of engagement, and to the different approaches to environmental understanding of indigenous hunters and modern science. There is, as I show, a paradox at the heart of science. For while, on the one hand, it asserts that human beings are biological organisms, composed of the same stuff and having evolved according to the same principles as organisms of every other kind, on the other hand the very possibility of a scientific account rests on the separation of humanity from organic nature. To resolve the paradox I suggest an alternative mode of understanding based on the premise of our engagement with the world, rather than our detachment from it. I do this by drawing on one anthropological study of how people in a non-Western society perceive themselves and the world around them. This is A. Irving Hallowell's classic study of the Ojibwa, indigenous hunters and trappers of the Canadian boreal forest. For the Ojibwa, knowledge is grounded in experience, understood as a coupling of the movement of one's awareness to the movement of aspects of the world. Experience, in this sense, does not mediate between mind and nature, since these are not separated in the first place. It is rather intrinsic to the process of being alive to the world. This is linked to a view of personhood in which the self is seen to inhere in the unfolding of the relations set up by virtue of its positioning in an environment. The essay explores the implications of this view of the self and experience for our understanding of animacy, metamorphosis, dreaming and speech. I conclude that what the Ojibwa have arrived at is not an alternative science of nature but a poetics of dwelling. Far from having been superseded, in the West, by the rise of modern science, such poetics is the necessary ground for all scientific activity.

In Chapter Seven I turn from science to art. Whereas science is often supposed to be a specific historical achievement of the Western world, art is commonly regarded as one of the hallmarks of humanity, revealing a universal capacity to represent experience in symbolic media. I argue against this view. Focusing on the ways in which hunters and gatherers depict animals, in painting, drawing and sculpture, I show that activities leading to the production of what we in the West would call 'art' should be understood not as ways of representing the world of experience on a higher, more symbolic plane, but of probing more deeply into it and discovering the significance that lies there. The argument is developed by way of a comparison between two distinct traditions, of 'painting the ancestors' among Australian Aboriginal peoples and of 'carving the spirits' among the peoples of the circumpolar North. The differences between these traditions reflect contrasting understandings of the relationships between human beings, animals and the land, which I call respectively totemic and animic. The fundamental difference between the totemic and animic depiction of animals is that the former focuses on morphology and anatomy, whereas the latter focuses on posture, movement and behaviour. But while hunters and gatherers have been painting and carving figures of one kind or another for thousands of years, only recently have they begun to engage in the production of 'art'.

To understand the original significance of what they were doing, I argue, we have to cease thinking of painting and carving as modalities of the production of art, and view art instead as a historically specific objectification of painting and carving.

Now it is conventional to describe hunters and gatherers as indigenous inhabitants of the lands in which they live. But precisely what it means to be 'indigenous' is a matter of some controversy. According to one definition, indigenous peoples are the descendants of those who inhabited a country when colonists arrived from elsewhere. Yet while habitation of the land is taken to be the source of indigenous identity, the claim that this identity can be passed on by descent implies that it is no longer drawn from the land at all, but from one's genealogical ancestors. I take up this paradox in Chapter Eight. It hinges, as I show, on the interpretation of five key terms: ancestry, generation, substance, memory and land. I show that the conventional meanings of these terms are linked through their common grounding in what I call the 'genealogical model'. After spelling out the elements of this model, and the assumptions it entails, I argue that it fundamentally misrepresents the ways in which peoples whom *we* class as indigenous constitute their identity, knowledgeability, and the environments in which they live. I suggest an alternative, relational approach to interpreting the key terms which is more consonant with these people's lived experience of inhabiting the land. In this approach, which ties together many of the key arguments of the preceding chapters while laying the groundwork for the ecological and developmental perspectives to be elaborated in Parts II and III, both cultural knowledge and bodily substance are seen to undergo continuous generation in the context of an ongoing engagement with the land and with the beings that dwell therein. I conclude that it is in articulating their experience in a way that is compatible with the discourses of the state that people are led to lay claim to indigenous status, in terms that nevertheless invert their own understandings.

*Chapter One*

# Culture, nature, environment

## Steps to an ecology of life

As a social anthropologist whose ethnographic interests lie in the northern circumpolar regions, I should like to begin with an observation drawn from my own field experience of mustering reindeer in Finnish Lapland. When pursuing reindeer, there often comes a critical point when a particular animal becomes immediately aware of your presence. It then does a strange thing. Instead of running away it stands stock still, turns its head and stares you squarely in the face. Biologists have explained this behaviour as an adaptation to predation by wolves. When the reindeer stops, the pursuing wolf stops too, both of them getting their breath back for the final, decisive phase of the episode when the deer turns to flight and the wolf rushes to overtake it. Since it is the deer that takes the initiative in breaking the stalemate, it has a slight head start, and indeed a healthy adult deer can generally outrun a wolf (Mech 1970: 200–3). But the deer's tactic, that gives it such an advantage against wolves, renders it peculiarly vulnerable when encountering human hunters equipped with projectile weapons or even firearms. When the animal turns to face the hunter, it provides the latter with a perfect opportunity to take aim and shoot. For wolves, deer are easy to find, since they travel with the herd, but hard to kill; for humans, to the contrary, deer may be hard to find, but once you have established contact, they are rather easy to kill (Ingold 1980: 53, 67).

Now the Cree people, native hunters of northeastern Canada, have a different explanation for why reindeer – or caribou as they are called in North America – are so easy to kill. They say that the animal offers itself up, quite intentionally and in a spirit of goodwill or even love towards the hunter. The bodily substance of the caribou is not taken, it is *received*. And it is at the moment of encounter, when the animal stands its ground and looks the hunter in the eye, that the offering is made. As with many other hunting people around the world, the Cree draw a parallel between the pursuit of animals and the seduction of young women, and liken killing to sexual intercourse. In this light, killing appears not as a termination of life but as an act that is critical to its regeneration.[1]

### Science and indigenous knowledge

Here, then, we have two accounts – one coming from biological science, the other from indigenous people – of what happens when humans encounter reindeer or caribou. My initial question is: how are we to understand the relation between them? Wildlife biologists are liable to react to native stories about animals presenting themselves of their own accord with a mixture of cynicism and incredulity. The cynical view would be that such stories provide a very handy way of dodging the ethical issues surrounding hunting and killing that cause such anxiety for many people in Western societies. For hunters, it

is most convenient to be able to transfer responsibility for the death of animals onto the animals themselves. What the Western scientist finds hard to believe is that anybody should be taken in by patently fanciful excuses of this kind. The fact of the matter, surely, is that caribou are being tracked down and killed. Could any intelligent person seriously think that animals *actually* offer themselves to hunters as recounted in the stories of the Cree? Are the folk who tell these stories mad, lost in a fog of irrational superstition, talking in allegories, or simply having us on? Whatever the answer may be, science insists that stories are stories, and as such have no purchase on what really goes on in the natural world.

Anthropologists are inclined to take a rather different approach. On being told that the success of hunting depends upon the bestowal of favour by animals, the anthropologist's first concern is not to judge the truth of the proposition but to understand what it means, given the context in which it is advanced. Thus it can readily be shown that the idea of animals offering themselves to hunters, however bizarre it might seem from the viewpoint of Western science, makes perfectly good sense if we start from the assumption (as the Cree evidently do) that the entire world – and not just the world of human persons – is saturated with powers of agency and intentionality. In Cree cosmology, the anthropologist concludes, relations with animals are modelled on those that obtain within the human community, such that hunting is conceived as a moment in an ongoing interpersonal dialogue (Tanner 1979: 137–8, see Gudeman 1986: 148–9, and Chapter Three, pp. 48–52). This is not to say that the biological explanation of the stand-off between hunter and caribou at the point of encounter, as part of an innate response mechanism designed to combat predation by wolves, is without interest. For anthropologists, however, explaining the behaviour of caribou is none of their business. Their concern is rather to show how hunters' direct experience of encounters with animals is given form and meaning within those received patterns of interconnected images and propositions that, in anthropological parlance, go by the name of 'culture'.

Though from what I have just said, the perspectives of the wildlife biologist and the cultural anthropologist might seem incompatible, they are nevertheless perfectly complementary, and indeed disclose a common, albeit practically unattainable, point of observation.[2] Whereas the biologist claims to study organic nature 'as it really is', the anthropologist studies the diverse ways in which the constituents of the natural world figure in the imagined, or so-called 'cognised' worlds of cultural subjects. There are any number of ways of marking this distinction, but of these the most notorious, at least in anthropological literature, is that between so-called 'etic' and 'emic' accounts. Derived from the contrast in linguistics between phonetics and phonemics, the former purports to offer a wholly neutral, value-free description of the physical world, while the latter spells out the specific cultural meanings that people place upon it.

There are two points I want to make about this distinction. First, to suggest that human beings inhabit discursive worlds of culturally constructed significance is to imply that they have already taken a step out of the world of nature within which the lives of all other creatures are confined. The Cree hunter, it is supposed, narrates and interprets his experiences of encounters with animals in terms of a system of cosmological beliefs, the caribou does not. But, secondly, to perceive this system *as* a cosmology requires that we observers take a further step, this time out of the worlds of culture in which the lives of all other *humans* are said to be confined. What the anthropologist calls a cosmology is, for the people themselves, a lifeworld. Only from a point of observation beyond culture is it possible to regard the Cree understanding of the relation between hunters and caribou as

but one possible construction, or 'modelling', of an independently given reality. But by the very same token, only from such a vantage point is it possible to apprehend the given reality for what it is, independently of any kind of cultural bias.

It should now be clear why natural science and cultural anthropology converge on a common vertex. The anthropological claim of perceptual relativism – that people from different cultural backgrounds perceive reality in different ways since they process the same data of experience in terms of alternative frameworks of belief or representational schemata – does not undermine but actually reinforces the claim of natural science to deliver an authoritative account of how nature really works. Both claims are founded upon a double disengagement of the observer from the world. The first sets up a division between humanity and nature; the second establishes a division, within humanity, between 'native' or 'indigenous' people, who live in cultures, and enlightened Westerners, who do not. Both claims, too, are underwritten by a commitment that lies at the heart of Western thought and science, to the extent of being its defining feature. This is the commitment to the ascendancy of abstract or universal reason. If it is by the capacity to reason that humanity, in this Western discourse, is distinguished from nature, then it is by the fullest development of this capacity that modern science distinguishes itself from the knowledge practices of people in 'other cultures' whose thought is supposed to remain somewhat bound by the constraints and conventions of tradition. In effect, the sovereign perspective of abstract reason is a product of the compounding of two dichotomies: between humanity and nature, and between modernity and tradition.

The result is not unlike that produced by perspective painting, in which a scene is depicted from a point of view which itself is given independently of that of the spectator who contemplates the finished work. Likewise abstract reason can treat, as objects of contemplation, diverse worldviews, each of which is a specific construction of an external reality (Figure 1.1). The anthropologist, surveying the tapestry of human cultural variation, is like the visitor to the art gallery – a 'viewer of views'. Perhaps it is no accident that both perspective painting and anthropology are products of the same trajectory of Western thought (Ingold 1993a: 223–4).

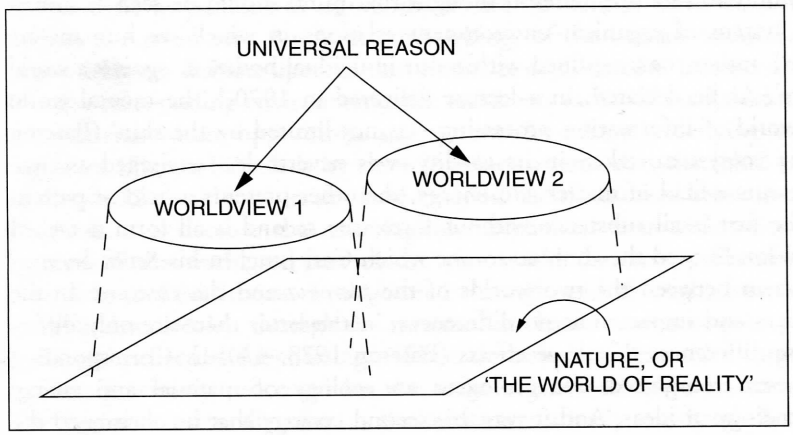


*Figure 1.1* The sovereign perspective of abstract or universal reason, which treats the lifeworlds of people of different cultures as alternative constructions, cosmologies or 'worldviews', superimposed upon the 'real' reality of nature. From this perspective, anthropology embarks on the comparative study of cultural world-views, while science investigates the workings of nature.

## Mind and nature: Gregory Bateson and Claude Lévi-Strauss

We have now reached the stage at which I can introduce the terms comprising the title of this chapter. I have observed that the possibility of an objective account of such natural phenomena as the behaviour of caribou, as well as the recognition of an indigenous account, such as that of the Cree, as fitting within a particular culture-specific cosmology, depend on a two-step movement of disengagement that cuts out first nature, then culture, as discrete objects of attention. Whereas the scientific account is attributed to disinterested observation and rational analysis, the indigenous account is put down to the accommodation of subjective experience within 'beliefs' of questionable rationality. What I wish to do now is to retrace the two steps in the reverse direction. Only by doing so, I maintain, can we level the ranking, implicit in what has been said up to now, of scientific over indigenous accounts. Moreover I believe it is necessary that we take these steps, that we descend from the imaginary heights of abstract reason and resituate ourselves in an active and ongoing engagement with our environments, if we are ever to arrive at an ecology that is capable of recovering the reality of the life process itself. In short, my aim is to replace the stale dichotomy of nature and culture with the dynamic synergy of organism and environment, in order to regain a genuine ecology of life. This ecology, however, will look very different from the kind that has become familiar to us from scientific textbooks. For it comprises a kind of knowledge that is fundamentally resistant to transmission in an authorised textual form, independently of the contexts of its instantiation in the world.

The subtitle of this chapter, 'steps to an ecology of life', is borrowed from the work of Gregory Bateson (1973). I have, however, substituted 'life' for 'mind' as it appears in the title of Bateson's famous collection of essays. This substitution is deliberate. Bateson was a great dismantler of oppositions – between reason and emotion, inner and outer, mind and body. Yet curiously, he seemed unable to shake off the most fundamental opposition of all, between form and substance. His objection to mainstream natural science lay in its reduction of 'real' reality to pure substance, thus relegating form to the illusory or epiphenomenal world of appearances. This he saw as the inevitable consequence of the false separation of mind and nature. Bateson thought that mind should be seen as immanent in the whole system of organism–environment relations in which we humans are necessarily enmeshed, rather than confined within our individual bodies *as against* a world of nature 'out there'. As he declared, in a lecture delivered in 1970,[3] 'the mental world – the mind – the world of information processing – is not limited by the skin' (Bateson 1973: 429). Yet the ecosystem, taken in its totality, was nevertheless envisaged as two-faced. One face presents a field of matter and energy, the other presents a field of pattern and information; the first is all substance without form, the second is all form detached from substance. Bateson likened the contrast to one which Carl Jung, in his *Seven Sermons to the Dead*, had drawn between the two worlds of the *pleroma* and the *creatura*. In the former there are forces and impacts but no differences; in the latter there are only differences, and it is these differences that have effects (Bateson 1973: 430–1). Corresponding to this duality Bateson recognised two ecologies: an ecology of material and energy exchanges, and an ecology of ideas. And it was this second ecology that he christened the 'ecology of mind'.

To bring out the full significance of Bateson's position, it is instructive to set it alongside that of another giant of twentieth-century anthropology, Claude Lévi-Strauss. In a lecture on 'structuralism and ecology' – delivered in 1972, just two years after the Bateson

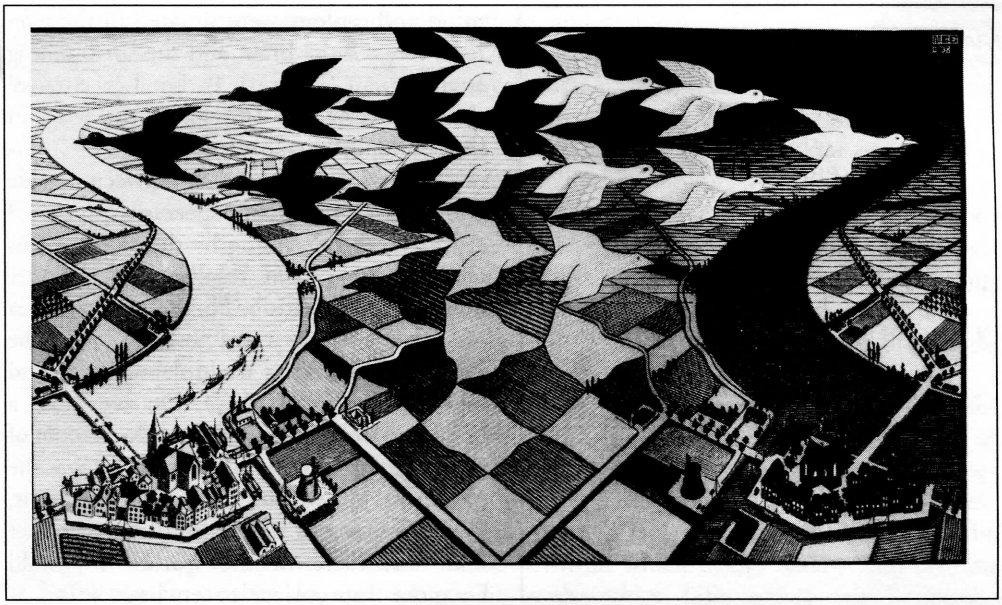

***Figure 1.2*** 'Day and night' (1938), a woodcut by the Dutch artist M. C. Escher, aptly illustrates, in visual form, the way in which the mind – according to Lévi-Strauss – works upon the data of perception. Drawing upon a selection of recognisable and familiar features of the environment, such as houses, fields, a river, flying swans, the mind casts them into a symmetrical structure of oppositions and contrasts: day/night, left/right, city/country, water/land.



lecture to which I have just referred – Lévi-Strauss likewise set out to demolish the classical dichotomy between mind and nature.[4] Although neither of the two figures made any reference to the other's work, there are some superficial resemblances between their respective arguments. For Lévi-Strauss, too, the mind is a processor of information, and information consists in patterns of significant difference. Unlike Bateson, however, Lévi-Strauss anchors the mind very firmly in the workings of the human brain. Fastening in a more or less arbitrary fashion upon certain elements or distinctive features that are presented to it in the surrounding environment, the mind acts rather like a kaleidoscope, casting them into patterns whose oppositions and symmetries reflect underlying universals of human cognition (Figure 1.2). It is by these interior patterns that the mind possesses knowledge of the world outside. If, in the final analysis, the distinction between mind and nature is dissolved, it is because the neurological mechanisms that underwrite the mind's apprehension of the world are part of the very world that is apprehended. And this world, according to Lévi-Strauss, is structured through and through, from the lowest level of atoms and molecules, through the intermediate levels of sensory perception, to the highest levels of intellectual functioning. 'When the mind processes the empirical data which it receives previously processed by the sense organs', Lévi-Strauss concluded, 'it goes on working out structurally what at the outset was already structural. And it can only do so in as much as the mind, the body to which the mind belongs, and the things which body and mind perceive, are part and parcel of one and the same reality' (1974: 21).

In all these respects, Bateson's position could not have been more different. For Lévi-Strauss ecology meant 'the world outside', mind meant 'the brain'; for Bateson both

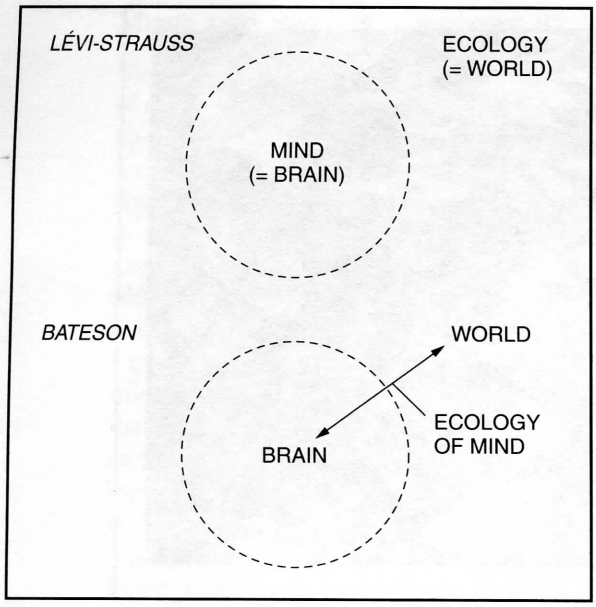


*Figure 1.3* Schematic comparison of Lévi-Strauss's and Bateson's views on mind and ecology.

mind and ecology were situated in the *relations between* the brain and the surrounding environment (Figure 1.3). For Lévi-Strauss, the perceiver could only have knowledge of the world by virtue of a passage of information across the boundary between outside and inside, involving successive steps of encoding and decoding by the sense organs and the brain, and resulting in an inner mental representation. For Bateson the idea of such a boundary was absurd, a point he illustrated with the example of the blind man's cane (1973: 434). Do we draw a boundary around his head, at the handle of the cane, at its tip, or halfway down the pavement? If we ask where the mind is, the answer would not be 'in the head rather than out there in the world'. It would be more appropriate to envisage mind as extending outwards into the environment along multiple sensory pathways of which the cane, in the hands of the blind man, is just one. Thus while Bateson shared with Lévi-Strauss the notion of mind as a processor of information, he did not regard processing as a step-by-step refinement or repackaging of sensory data already received, but rather as the unfolding of the whole system of relations constituted by the multi-sensory involvement of the perceiver in his or her environment.

To continue with the example of the blind man, it is as though his processing of information were tantamount to his own movement – that is, to his own *processing* through the world. The point about movement is critical. For Lévi-Strauss, both the mind and the world remain fixed and immutable, while information passes across the interface between them. In Bateson's account, by contrast, information only exists thanks to the movement of the perceiver relative to his or her surroundings. Bateson constantly emphasised that stable features of the world remain imperceptible unless we move in relation to them: if the blind man picks up surface features of the road ahead by sweeping his cane from side to side, people with normal vision do the same with their eyes. Through this scanning movement we *draw* distinctions, in the sense not of representing them graphically, but of 'pulling them out'.[5] Whereas Lévi-Strauss often writes as though the world were sending coded messages to the brain, which it then recovers through an operation of decoding, for Bateson the world opens out to the mind through a process of revelation. This distinction, between decoding and revelation, is critical to my argument, and I shall return to it shortly. First, however, a few words are needed on the subject of *life*.

## The ecology of life

My leading question is one from which Bateson also set out. 'What sort of thing is this', he asked, 'which we call "organism plus environment"?' (Bateson 1973: 423). But the answer at which I have arrived is different. I do not think we need a separate ecology of

mind, distinct from the ecology of energy flows and material exchanges. We *do* however need to rethink our understanding of life. And at the most fundamental level of all, we need to think again about the relation between form and process. Biology is – or at least is supposed to be – the science of living organisms. Yet as biologists gaze into the mirror of nature, what they see – reflected back in the morphology and behaviour of organisms – is their own reason. Accordingly, they are inclined to impute the principles of their science to the organisms themselves, as though each embodied a formal specification, programme or building plan, a *bio-logos*, given independently and in advance of its development in the world. Indeed the possibility of such a context-independent specification is an essential condition for Darwinian theory, according to which it is this specification – technically known as the genotype – that is said to undergo evolution through changes in the frequency of its information-bearing elements, the genes.

But if the underlying architecture of the organism were thus pre-specified, then its life-history could be nothing more than the realisation or 'writing out' of a programme of construction, under given environmental conditions. Life, in short, would be purely consequential, an effect of the injection of prior form into material substance. I take a different view (Ingold 1990: 215). Organic life, as I envisage it, is active rather than reactive, the creative unfolding of an entire field of relations within which beings emerge and take on the particular forms they do, each in relation to the others. Life, in this view, is not the realisation of pre-specified forms but the very process wherein forms are generated and held in place. Every being, as it is caught up in the process and carries it forward, arises as a singular centre of awareness and agency: an enfoldment, at some particular nexus within it, of the generative potential that is life itself. (This argument is further developed in Chapter Twenty-one, pp. 383–5.)

I can now spell out more precisely what I mean by an 'ecology of life'. It all hinges on a particular answer to Bateson's question: what is this 'organism plus environment'? For conventional ecology, the 'plus' signifies a simple addition of one thing to another, both of which have their own integrity, quite independently of their mutual relations. Thus the organism is specified genotypically, prior to its entry into the environment; the environment is specified as a set of physical constraints, in advance of the organisms that arrive to fill it. Indeed the ecology of the textbooks could be regarded as profoundly *anti*-ecological, insofar as it sets up organism and environment as mutually exclusive entities (or collections of entities) which are only subsequently brought together and caused to interact. A properly ecological approach, to the contrary, is one that would take, as its point of departure, the whole-organism-in-its-environment. In other words, 'organism plus environment' should denote not a compound of two things, but one indivisible totality. That totality is, in effect, a developmental system (cf. Oyama 1985), and an ecology of life – in my terms – is one that would deal with the dynamics of such systems. Now if this view is accepted – if, that is, we are prepared to treat form as *emergent* within the life-process – then, I contend, we have no need to appeal to a distinct domain of mind, to *creatura* rather than *pleroma*, to account for pattern and meaning in the world. We do not, in other words, have to think of mind or consciousness as a layer of being over and above that of the life of organisms, in order to account for their creative involvement in the world. Rather, what we may call mind is the cutting edge of the life process itself, the ever-moving front of what Alfred North Whitehead (1929: 314) called a 'creative advance into novelty'.

## A NOTE ON THE CONCEPT OF ENVIRONMENT

Armed with this approach to the ecology of life, I shall now return to the question of how human beings perceive the world around them, and to see how we might begin to build an alternative to the standard anthropological account of environmental perception as a cultural construction of nature, or as the superimposition of layers of 'emic' significance upon an independently given, 'etic' reality. Before we begin, however, I want to make three preliminary points about the notion of environment. First, 'environment' is a relative term – relative, that is, to the being whose environment it is. Just as there can be no organism without an environment, so also there can be no environment without an organism (Gibson 1979: 8, Lewontin 1982: 160). Thus *my* environment is the world as it exists and takes on meaning in relation to me, and in that sense it came into existence and undergoes development with me and around me. Secondly, the environment is never complete. If environments are forged through the activities of living beings, then so long as life goes on, they are continually under construction. So too, of course, are organisms themselves. Thus when I spoke above of 'organism plus environment' as an indivisible totality, I should have said that this totality is not a bounded entity but a *process* in real time: a process, that is, of growth or development.

The third point about the notion of environment stems from the two I have just made. This is that it should on no account be confused with the concept of nature. For the world can exist as nature only for a being that does not belong there, and that can look upon it, in the manner of the detached scientist, from such a safe distance that it is easy to connive in the illusion that it is unaffected by his presence. Thus the distinction between environment and nature corresponds to the difference in perspective between seeing ourselves as beings *within* a world and as beings *without* it. Moreover we tend to think of nature as external not only to humanity, as I have already observed, but also to history, as though the natural world provided an enduring backdrop to the conduct of human affairs. Yet environments, since they continually come into being in the process of our lives – since we shape them as they shape us – are themselves fundamentally historical. We have, then, to be wary of such a simple expression as 'the natural environment', for in thus conflating the two terms we already imagine ourselves to be somehow *beyond* the world, and therefore in a position to intervene in its processes (Ingold 1992a).

## COMMUNICATION AND REVELATION

When I was a child my father, who is a botanist, used to take me for walks in the countryside, pointing out on the way all the plants and fungi – especially the fungi – that grew here and there. Sometimes he would get me to smell them, or to try out their distinctive tastes. His manner of teaching was to show me things, literally to point them out. If I would but notice the things to which he directed my attention, and recognise the sights, smells and tastes that he wanted me to experience because they were so dear to him, then I would discover for myself much of what he already knew. Now, many years later, as an anthropologist, I read about how people in Australian Aboriginal societies pass their knowledge across the generations. And I find that the principle is just the same!

In his classic study of the Walbiri of Central Australia, Mervyn Meggitt describes how a boy being prepared for initiation would be taken on a 'grand tour', lasting two or three months. Accompanied by a guardian (a sister's husband) and an elder brother, the boy was taken from place to place, learning as he went about the flora, fauna and topography

of the country, while being told (by the elder brother) of the totemic significance of the various localities visited (Meggitt 1962: 285). Every locality has its story, telling of how it was created through the earth-shaping activities of ancestral beings as they roamed the country during the formative era known as the Dreaming. Observing the waterhole while the story of its formation is related or enacted, the novice witnesses the ancestor coming out of the ground; likewise, casting his eyes over the distinctive outline of a hill or rocky outcrop, he recognises in it the congealed form of the ancestor as it lies down to rest. Thus are truths immanent in the landscape, the truths of the Dreaming, gradually revealed to him, as he proceeds from the most superficial, 'outside' level of knowledge to deeper, 'inside' understanding.[6]

Did my father's knowledge of plants and fungi, or the Aboriginal elder's knowledge of the Dreaming, take the form of a set of interconnected beliefs and propositions inside his head? Is it through the transfer of such beliefs and propositions from one generation to the next that we learn to perceive the world in the way we do? If so – if all knowledge is cradled within the mind – why should so much importance be placed on ensuring that novices should see or otherwise experience for themselves the objects or features of the physical world?

One answer might be to suggest that it is through its inscription in such objects or features – plants and fungi, waterholes and hills – that cultural knowledge is transmitted. These objects would accordingly figure as vehicles, or carriers, for meanings that are, so to speak, 'pinned on', and that together constitute a specific cultural worldview or cosmology (Wilson 1988: 50). In other words, cultural forms would be encoded in the landscape just as, according to the standard semiological approach to linguistic signification, conceptual representations are encoded in the medium of sound. The great Swiss linguist Ferdinand de Saussure, who laid the foundation for this approach, argued that a sign is essentially the union of two things, a signifier and a signified, and that the relation between them is established through the mapping of one system of differences on the plane of ideas onto another system of differences on the plane of physical substance (Saussure 1959: 102–22). As sounds stand for concepts, so – by the same logic – fungi (for my father) or waterholes (for the Aboriginal elder) would stand as signifiers for elements of a comprehensive system of mental representations. Was my father, then, communicating his knowledge to me by encoding it in the fungi? Do Aboriginal elders transmit ancestral wisdom by encoding it in hills and waterholes?

Strange as it may seem, much anthropological analysis of the cultural construction of the environment proceeds from this assumption. Yet if the idea of encoding beliefs in fungi sounds bizarre, as indeed it is, the idea of the Dreaming as a cosmology encoded in the landscape is no less so. My father's purpose, of course, was to introduce me to the fungi, not to communicate by way of them, and the same is true of the purpose of Aboriginal elders in introducing novices to significant sites. This is not to deny that information may be communicated, in propositional or semi-propositional form, from generation to generation. But information, in itself, is not knowledge, nor do we become any more knowledgeable through its accumulation. Our knowledgeability consists, rather, in the capacity to situate such information, and understand its meaning, within the context of a direct perceptual engagement with our environments. And we develop this capacity, I contend, by having things *shown* to us.

The idea of showing is an important one. To show something to somebody is to cause it to be seen or otherwise experienced – whether by touch, taste, smell or hearing – by that other person. It is, as it were, to lift a veil off some aspect or component of the

environment so that it can be apprehended directly. In that way, truths that are inherent in the world are, bit by bit, revealed or disclosed to the novice. What each generation contributes to the next, in this process, is an *education of attention* (Gibson 1979: 254). Placed in specific situations, novices are instructed to feel this, taste that, or watch out for the other thing. Through this fine-tuning of perceptual skills, meanings immanent in the environment – that is in the relational contexts of the perceiver's involvement in the world – are not so much constructed as discovered.

It could be said that novices, through their sensory education, are furnished with keys to meaning. But the metaphor of the key has to be used with some care. I do not have in mind the kind of key – analogous to a cipher – that might enable me to translate from physical signifiers to mental ideas and thereby to come into possession of the cultural knowledge of my forefathers through a reverse decoding of what they, in their turn, had encoded in the landscape. There is, indeed, a rather fundamental circularity in the notion that cultural knowledge is transmitted across generations by means of its encoding in material symbols. For without the key it is impossible for the novice to read off the cultural message from salient features of the physical world. Yet unless the message has already been thoroughly understood, it is impossible to extract the key. How can features of the landscape figure as elements of a communicative code if, in order to crack the code, you must already know what is to be communicated thereby?

When the novice is brought into the presence of some component of the environment and called upon to attend to it in a certain way, his task, then, is not to decode it. It is rather to discover for himself the meaning that lies within it. To aid him in this task he is provided with a set of keys in another sense, not as ciphers but as *clues* (see Chapter Eleven, p. 208). Whereas the cipher is centrifugal, allowing the novice to access meanings that are attached ('pinned on') by the mind to the outer surface of the world, the clue is centripetal, guiding him towards meanings that lie at the heart of the world itself, but which are normally hidden behind the facade of superficial appearances. The contrast between the key as cipher and the key as clue corresponds to the critical distinction, to which I have already drawn attention, between decoding and revelation. A clue, in short, is a landmark that condenses otherwise disparate strands of experience into a unifying orientation which, in turn, opens up the world to perception of greater depth and clarity.[7] In this sense, clues are keys that unlock the doors of perception, and the more keys you hold, the more doors you can unlock, and the more the world opens up to you. My contention is that it is through the progressive acquisition of such keys that people learn to perceive the world around them.

## Form and feeling

When Susanne Langer gave the title *Philosophy in a New Key* to her influential book on art and aesthetics (Langer 1957), she was of course using the metaphor of the key in yet another sense, here referring to a kind of register of understanding, akin to the key of musical notation. In the book, Langer contends that the meaning of art should be found in the art object itself, as it is *presented* to our awareness, rather than in what it might be supposed to *represent* or signify. If people in Western societies find this hard to grasp, it is because they are so used to treating art as somehow representative of something else – for we expect every picture to have a title – that the ways in which we respond to objects or performances themselves are forever getting confused with our responses to whatever they are supposed to stand for. One way around this difficulty, Langer suggests, is to

concentrate on the kind of art that – at least for Westerners – is apparently *least* representational, namely music. Music, surely, can stand for nothing but itself, so that an investigation of musical meaning should be able to show how meaning can reside in art as such. 'If the meaning of art belongs to the sensuous percept itself apart from what it ostensibly represents', writes Langer, 'then such purely artistic meaning should be most accessible through musical works' (1957: 209). Pursuing this line of argument, Langer suggests that 'what music can actually reflect is . . . the morphology of feeling' (p. 238).

I believe this idea can be generalised, so long as we recognise that feeling is a mode of active, perceptual engagement, a way of being literally 'in touch' with the world. The craftsman feels his raw material, as the potter feels clay or the turner feels wood, and out of that process of feeling there emerges the form of the vessel. Likewise, the orchestral musician feels – or rather watches – the gestures of the conductor, and out of that feeling comes a phrase shaped in sound. Or more generally, *art gives form to human feeling*; it is the shape that is taken by our perception of the world, guided as it is by the specific orientations, dispositions and sensibilities that we have acquired through having had things pointed out or shown to us in the course of our sensory education.

While on the subject of music, let me give you one example of what I mean, taken from an essay by my favourite composer, Leoš Janáček. Here, Janáček writes of how, on one occasion, he stood on the seashore and notated the sounds of the waves. The waves 'shout', 'bubble', and 'yell' (Janáček 1989: 232). Figure 1.4 is a reproduction of what he

I stand on the shore at high tide. The swarm of waves rises higher and higher; every wave shouts out its own motif:

This one bubbles:

That one yells:


*Figure 1.4* Janáček's sketches of the sounds of the waves, as he stood on the shore at the Dutch port of Flushing in 1926 (taken from his essay 'The sea, the land', in Janáček 1989: 229–34).

From *Janáček's Uncollected Essays on Music*, Selected, Edited and Translated by Mirka Zemanová, published by Marion Boyars Publishers of London and New York, 1989, p. 232.

put in his notebook. Now these musical sketches are no mere mechanical record of the sounds as they impinged on his ears. For Janáček is not just hearing, he is *listening*. That is to say, his perception is grounded in an act of attention. Like watching and feeling, listening is something people *do* (see Chapter Fourteen, p. 277). In his act of attention, the movement of the composer's consciousness resonates with the sounds of the waves, and each sketch gives form to that movement.

But Janáček teaches us something more. Throughout his career, he was a compulsive collector of what he called 'speech-melodies'. He scribbled down the melodic form of snippets of speech heard from all kinds of people in all manner of activities: a housekeeper calling to her chickens as she scatters grain, an old man grumbling as he goes to work, children at play, and so on. But these jottings were not confined to human sounds. Speech, for Janáček, was a kind of song, and so were all the other sounds that resonate with our consciousness, from the noises of the waves, through the tolling of an old rusty bell or the ominous sound of a burst water-pipe, to the clucking of hens in the farmyard and the 'bloodthirsty nocturne' of a mosquito.[8] Are we to suppose, then, that in these melodies, nature is trying to communicate with us, to send us messages encoded in patterns of sound? Janáček's point was quite the opposite. It was that we should cease thinking of the sounds of speech merely as vehicles of symbolic communication, as serving to give outward expression to inner states such as beliefs, propositions or emotions. For sound, as Janáček wrote, 'grows out of our entire being . . . *There is no sound that is broken away from the tree of life*' (1989: 88, 99, original emphasis).

Let me put this another way. The waves, says Janáček, shout and yell. So, sometimes, do people. When you yell in anger, the yell *is* your anger, it is not a vehicle that *carries* your anger. The sound is not broken off from your mental state and despatched like a message in a bottle cast upon the ocean of sound in the hope that someone might pick it up. The echoes of the yell are the reverberations of your own being as it pours forth into the environment. Maurice Merleau-Ponty, in his *Phenomenology of Perception*, caught the point precisely in his observation that your yell '*does not make me think of anger*, it is anger itself' (1962: 184, original emphasis). And if people pour out their being in the melodies of speech, so the waves pour out theirs in the sounds we describe as foaming and crashing, and the hens pour out theirs in their endless clucking. Thus to take one more hint from Janáček, song – any song, any singing – 'is something from which we are to learn the truth of life' (1989: 89). This is why Aboriginal people sing their songs of the Dreaming, songs which give form to their feeling for the country around them.

## Conclusion: towards a sentient ecology

I have not forgotten the Cree hunter and the caribou, and to wrap up my argument, I now want to return to them. The hunter, let us say, can *tell*. He can do so in two ways. First, he is a perceptually skilled agent, who can detect those subtle clues in the environment that reveal the movements and presence of animals: thus he can 'tell' where the animals are. Secondly, he is able to narrate stories of his hunting journeys, and of his encounters with animals. But in doing so, in telling in this other sense, he is no more aiming to produce a record or transcription of what happened than was Janáček, when he wrote down the sounds of the waves. When the hunter speaks of how the caribou presented itself to him, he does not mean to portray the animal as a self-contained, rational agent whose action in giving itself up served to give outward expression to some inner resolution. Like music, the hunter's story is a performance; and again like music, its aim

is to give form to human feeling – in this case the feeling of the caribou's vivid proximity as another living, sentient being. At that crucial moment of eye-to-eye contact, the hunter *felt* the overwhelming presence of the animal; he felt as if his own being were somehow bound up or intermingled with that of the animal – a feeling tantamount to love and one that, in the domain of human relations, is experienced in sexual intercourse. In telling of the hunt he gives shape to that feeling in the idioms of speech.

In his recent study of reindeer herders and hunters of the Taimyr region of northern Siberia, David Anderson (2000: 116–17) writes that in their relations with animals and other components of the environment, these people operate with a *sentient ecology*. This notion perfectly captures the kind of knowledge people have of their environments that I have been trying to convey. It is knowledge not of a formal, authorised kind, transmissible in contexts outside those of its practical application. On the contrary, it is based in feeling, consisting in the skills, sensitivities and orientations that have developed through long experience of conducting one's life in a particular environment. This is the kind of knowledge that Janáček claimed to draw from attending to the melodic inflections of speech; hunters draw it from similarly close attention to the movements, sounds and gestures of animals.

Another word for this kind of sensitivity and responsiveness is *intuition*. In the tradition of Western thought and science, intuition has had a pretty bad press: compared with the products of the rational intellect, it has been widely regarded as knowledge of an inferior kind. Yet it is knowledge we all have; indeed we use it all the time as we go about our everyday tasks (Dreyfus and Dreyfus 1986: 29). What is more, it constitutes a necessary foundation for any system of science or ethics. Simply to exist as sentient beings, people must already be situated in a certain environment and committed to the relationships this entails. These relationships, and the sensibilities built up in the course of their unfolding, underwrite our capacities of judgement and skills of discrimination, and scientists – who are human too – depend on these capacities and skills as much as do the rest of us. That is why the sovereign perspective of abstract reason, upon which Western science lays its claim to authority, is practically unattainable: an intelligence that was completely detached from the conditions of life in the world could not think the thoughts it does. It is also why reasoning logically from first principles will not suffice to design an ethical system that actually works. For any judgement that had no basis in intuition, however justified it might be on grounds of 'cold' logic, would carry no practical or motivational force whatever. Where the logic of ethical reasoning, setting out from first principles, leads to results that are counter-intuitive, we do not reject our intuitions but rather change the principles, so that they will generate results which conform more closely to what we *feel* is right.

Intuitive understanding, in short, is not contrary to science or ethics, nor does it appeal to instinct rather than reason, or to supposedly 'hardwired' imperatives of human nature. On the contrary, it rests in perceptual skills that emerge, for each and every being, through a process of development in a historically specific environment. These skills, I maintain, provide a necessary grounding for any system of science or ethics that would treat the environment as an *object* of its concern. The sentient ecology is thus both pre-objective and pre-ethical. I have no wish to devalue the projects of either natural science or environmental ethics, indeed both are probably more needed now than ever before. My plea is simply that we should not lose sight of their pre-objective, pre-ethical foundations. My overriding aim has been to bring these foundations to light. And what these excavations into the formation of knowledge have revealed is not an alternative science, 'indigenous'

rather than Western, but something more akin to a *poetics of dwelling*. It is within the framework of such a poetics, I contend, that Cree tales of animals offering themselves to humans, Aboriginal stories of ancestors emerging from waterholes, Janáček's attempts to notate the sounds of nature and my father's efforts to introduce me to the plants and fungi of the countryside, can best be understood.