On the Distinction between Evolution and History

Tim Ingold
University of Aberdeen

ABSTRACT

It is a fact about human beings, Maurice Godelier has insisted, that alone among animals, they 'produce society in order to live'. By this he means that the designs and purposes of human action upon the environment – action that yields a return in the form of the wherewithal for subsistence – have their source in the domain of social relations, a domain of mental realities that stands over and above the sheer materiality of nature. Through their transforming action upon the natural environment, Godelier claims, human beings transform not only their relations with nature but also those relations among themselves constitutive of the form of society. In so doing, they **make their own history**. Though other animal and plant species might be said to be products of history too, it is not one that they have produced for themselves, but rather the outcome of an evolutionary process of variation under natural selection.

This paper takes a critical look at the notion of making history. It is shown that this notion rests on a dualistic conception of the human being, as an intentional subject on the one hand, and a material object on the other. Rejecting this dualism, it is proposed that the image of making as a metaphor for production be replaced with that of **growth.** In growing plants or raising animals, the farmer or herdsman does not so much transform nature as play a part in establishing the conditions of development for selected non-human components of the environment. Likewise, through their intentional actions people play their part in establishing the conditions under which successive

Social Evolution & History, Vol. 1 No. 1, July 2002 5–24

human generations grow to maturity and live out their lives. We call that process history. As such, however, it is but one aspect of a process that is going on throughout the organic world. The conventional distinction between history and evolution is thus dissolved. For human beings do not so much transform the material world as play their part, alongside other creatures, in the world's transformation of itself.

TRANSFORMATION AND AUTOPOIESIS

Maurice Godelier introduces his book *The mental and the material* with a fact and a hypothesis (1986: 1). The fact is that, alone among animals, human beings 'produce society in order to live'. By this he means that the designs and purposes of human action upon the environment – action that yields a return in the form of the wherewithal for subsistence – have their source in the domain of social relations, a domain of mental realities that stands over and above the sheer materiality of nature. Through their creative action upon the natural environment, Godelier claims, human beings bring about changes not only in their relations with that environment but also in those relations among themselves that are constitutive of society. And this leads to the hypothesis, namely that it is precisely because they transform nature that human beings have a History. Of course it is possible to argue that other animal and plant species also have histories of a kind, but these are not histories that they have produced for themselves, but are rather the outcomes of an evolutionary process of variation under natural selection. Human beings, by contrast, are not only made by history, they also play their part in helping to make it. Theirs, if you will, is History with a capital 'H' (Godelier 1989: 63).

My purpose in this article is to take a critical look at this notion of making history. While I would agree with Godelier that in a certain sense, human beings do produce society in order to live, I believe that we should cease thinking of production as a process of making, and regard it rather as a process of growth. I want to argue, in short, that History is not so much a movement in which human beings **make** society, as one in which they **grow** one another. This argument, however, forms part of a broader project. For many years now, I have been acutely troubled by the distinction between the (small *h*) natural history of the human species and the (capital *H*) History of humanity. It has been customary to refer to the former kind of history by means

of the concept of evolution, and to reserve the concept of history for the latter. For convenience, I shall adhere to this convention. The problem, then, is to figure out the nature of the difference between history and evolution. It seems to me that on the solution to this problem hinges our entire understanding of the relation between the social and the biological dimensions of human existence.

There is a well-established argument that proceeds along the following lines. The human species evolved, like any other, through a process of variation under natural selection. This led to the establishment of certain dispositions and capacities which are universal to every individual of the species, regardless of the specific ways in which they may be expressed. With these capacities in place, history – as it were – 'took off'. The entirety of human history is thus to be understood as the realization, over time, of potentials established in the course of our evolutionary ancestry, and that each of us carries as part of an innate, genotypic endowment. Entailed in this argument, however, is the notion that at some point, unprecedented in the evolution of life on this planet, humanity broke through the barrier of nature, whereupon history began, along with all the other things that are supposed to make us 'truly human' – language, symbolism, art and architecture, technology, religion, and so on. And this idea of a breakthrough has set prehistorians on a frantic and much publicized search for the point of origin of what they nowadays call 'modern humans': people, they say, who were just like us **anatomically**, though not of course **culturally** (Ingold 1995). This point is said to mark nothing less than the 'human revolution' (Mellars and Stringer 1989).

My own view is that to seek the origin of true humanity is to set off in quest of an illusion, and in the course of this article I hope to show why. First of all, however, we need to consider why this illusion should exert such a hold over the modern scientific imagination. The explanation, I believe, lies in the character of science itself. The project of science, and its claim to deliver an authoritative account of how nature really works, is founded in a belief in the supremacy of human reason. Yet contemporary scientists, like their eighteenth century predecessors, are also committed to a notion of the psychic unity of mankind. Thus while not all humans are scientists, it is supposed that all humans have evolved with the **capacity** to be scientists – that is, with a rational intelligence. The process of evolution in which this capacity came to be established, a process of encephalization involv-

ing an extraordinary increase in the relative size and complexity of the brain, has therefore to be distinguished from the process of history, in which the evolved capacity was progressively realized. For the alternative, which held sway from the publication of Darwin's *The Descent of Man* (1871) through to the early decades of this century, was to suppose that scientists and philosophers actually have more evolved brains than other people, past and present, and therefore – as T. H. Huxley famously declared (1874: 107–111) – that the distance separating the scientist from the savage is similar in kind and degree to that between the savage and the ape.

In short: we have one theory, of evolution, to explain how our apelike ancestors became human, and another, of history, to explain how (some) humans became scientists; and at the intersection of the two, the point of origin where the axis of history rises from the axis of evolution, lies the figure of the 'anatomically modern human'. And we are left with the paradox that the claim of biological science – namely, that humans differ from their hominid or pongid ancestors in degree rather than kind – presupposes a human history that differs in kind, not degree, from the process of evolution. That is why we do not hear of anatomically modern elephants, or anatomically modern chimpanzees. Only with human beings is it found necessary to distinguish cultural from anatomical modernity, and the respective processes leading up to them. Every human is a potential scientist, but there are no scientists among the animals (Ingold 1995: 208).

Now behind this paradox lies what is perhaps the founding contradiction of Western thought and science: that it has no way of comprehending human beings' creative involvement in the material world save by taking them out of it. Insofar as we are **within** the world we are objectively bound to the determinations of an evolved human nature which we have had no hand in shaping; conversely we are able to shape our own destinies only insofar as they issue from a historical consciousness that is constituted **without** the world, in the intersubjective domain of society. My principal aim is to establish a sense of history that enables us to resolve this contradiction. The idea of history that has come down to us from Marx, and that is powerfully reiterated in the writings of Godelier, is rooted in the notion of **transformation**: thus through their transformations of external nature in the process of domestication it is supposed that human beings have transformed their own inner nature, and in so doing, have built them-

selves a history of civilization. I want to suggest instead that we think of history as a process in which human beings do not so much transform the world as play their part in the world's transformation of itself. History, in a word, is a movement of **autopoiesis**.

To think of history in this way is at once to dissolve the dichotomy between society and nature, and to recognize that the processes wherein human generations shape the conditions of life for their successors are continuous with those that are unfolding throughout the organic world. No longer, then, are we forced to make a radical distinction between the axes of evolution and history; and by the same token the imaginary point of origin formed by their intersection disappears. To reach this position, I shall present my argument in four stages. First, I shall explore the meanings of the two key terms, production and history, as these are constituted within the discourse of what, for simplicity, I call the 'orthodox view'. Secondly, I show how the idea of production entailed in the notion of making history has its antecedents in a much older view, which regards human work as a matter of revealing or bringing forth what is already immanent in the natural world. I shall then go on to show how my dawning awareness of the inadequacies of the orthodox view was coupled with the realization that the establishment of a more satisfactory alternative would require nothing less that a complete overhaul of the biological theory of the organism. Finally, returning to a pre-modern concept of production as growth, and to a conception of history as 'growing people', I shall consider the possible implications of this alternative approach. I begin, then, with the orthodox concept of production.

THE PRODUCTION OF HISTORY

Like all other animals, human beings have to eat in order to live. It is widely supposed, however, that in the provisioning of humans, the means of subsistence do not pass directly from hand to mouth but take a detour through society. As Marx and Engels declared over a century ago, it is in actually producing their food, rather than simply gathering or collecting it ready-made in nature, that humans distinguish themselves from the rest of the animal kingdom (Marx and Engels 1977: 42). The notion of production, here, has a double connotation – of appropriation and transformation (see, for example, Cook 1973: 31). To appropriate is to take hold of some portion of living

nature in such a way as to make it the object of relations among persons; to transform it is to alter it from its naturally given state in accordance with a design or plan that issues from a superior source in society. Non-human animals may literally take hold of their quarry, whether with tooth or claw, but they do not thereby convert it into property; they may also, through their activities, wreak transformative effects on the environment, but they do not do so intentionally. They have no conception of their task. Human beings alone are said to produce, since they confront nature as a domain of raw materiality external to their socially constituted selves. In short, couched within the duality of society and nature, production figures as the work of social agency against a natural resistance.

In this confrontation, moreover, lies the dynamic of history, as conceived within the terms of the orthodox view. Thus it is commonly supposed that whereas the events of evolution 'just happen', those of history are intentionally authored by human beings themselves. 'The essence of the distinction between human history and natural history', wrote Marx, with acknowledgement to Giambattista Vico, 'is that the former is the work of man and the latter is not' (Marx 1930: 392, n.2). In his *New Science* of 1725, Vico had berated philosophers for having wasted so much effort is studying the world of nature which, having been made by God, ultimately lies beyond human comprehension, at the expense of the study of things which owe their origination to the human mind and which philosophers, being human too, could hope to understand. History, then, comprises a series of changes over time in the subjective conditions of human authorship – in the structures of perception and cognition, in patterns of awareness and response, in the understanding of self and others – which have left the organism, as an objectively given, biological entity, virtually untouched.

In the course of this history, humans have spread to every habitable region of the earth, great empires have risen and fallen, and developments in science and technology have placed in the hands of at least some humans instruments of control and weapons of destruction of unparalleled magnitude. Through all of this, however, basic human nature is assumed to have remained much as it was in the Stone Age, the product of an evolutionary adaptation to the conditions of life faced by ancestral hunter-gatherers in Pleistocene environments hundreds of thousands of years ago, in the days before history even began. Two prominent psychologists have recently gone so far as to

define history as 'a sequence of changes through which a species passes while remaining biologically stable' (Premack and Premack 1994: 350). The very possibility of history, in this sense, presupposes a dimension of existence beyond the purely biological – a dimension commonly identified with humanity itself.

It is somewhat paradoxical that human nature should be considered to be so fixed and immune from the effects of history, when these effects upon the nature that surrounds us, in the **environment**, are apparent for all to see. The paradox is resolved, up to a point, by attributing the formal specifications of human nature to an interior program, nowadays known as the genotype. According to the rule first enunciated by Weismann, at the close of the nineteenth century, there can be no reverse influence of the developing organism on its hereditary endowment, thus rendering impossible the so-called 'Lamarckian' inheritance of acquired characteristics. Weismann's barrier, which is fundamental to the structure of modern evolutionary theory, effectively insulates the genotype from the direct impact of historical experience (Ingold 1990: 212–213).

However when we turn to consider the human transformation of external nature, as in the conversion of virgin forest into cultivated fields, or of naturally occurring raw materials into tools and artifacts, the relation between form and substance is inverted. Far from providing the form, in the shape of a genetic program, nature furnishes the substance, upon which are imposed forms – cultural or ideational rather than genetic – whose source lies in the exterior domain of human society. The artificial environment, as it were, wears its forms on its material surface rather than hidden within, and consequently bears the cumulative imprint of a changeful sequence of historical subjectivities. Surveying the world around us, we see nature not in its pristine state, but modified to varying degrees through the inscription of cultural design. That is why we are inclined to speak of buildings, tools and other artifacts as objects of 'material culture' rather than of nature, even though the stuff of which they are made is intrinsically identical to that which may be found in environments untainted by human activity.

THE HISTORY OF 'PRODUCTION'

Let me now return to Godelier. Taking as his starting point the idea of production as a human transformation of nature, he sets out to

classify the various manners and degrees of modification of the environment by means of a division into five 'kinds of materiality'. The first comprises that part of nature which is wholly untouched by human activity; secondly there is the part that has been changed on account of the presence of humans, but indirectly and unintentionally; the third is the part that has been intentionally transformed by human beings and that depends upon their attention and energy for its reproduction; the fourth part comprises materials that have been fashioned into instruments such as tools and weapons, and the fifth may be identified with what we would conventionally call the 'built environment' – houses, shelters, monuments, and the like (Godelier 1986: 4–5). In this classification the critical division falls between the second and third kinds, for it is also taken to mark the distinction between the wild and the domestic. The third part of nature is said to consist, primarily, of domesticated plants and animals, whereas the biotic components of the first and second parts are either wild or, at most, in a condition of pre-domestication. Moreover, Godelier points to the domestication of plants and animals as a paradigmatic instance of the transforming action of humanity upon nature, or in a word, of production. This leaves us, however, with two unresolved problems.

The first concerns the status of hunters and gatherers who have sought not to transform their environments but rather to conserve them in a form that remains, as far as possible, unscarred by human activity. If, as Godelier asserts, 'human beings have a history because they transform nature' (1986: 1), are we to conclude that humans who do not transform nature lack history? For his own part, Godelier resists this conclusion: 'I cannot see any theoretical reason to consider the forms of life and thought characteristic of hunters, gatherers and fishers as more natural than those of the agriculturalists and stockbreeders who succeeded them' (1986: 12). The activities of hunter-gatherers, like those of all human beings at all times, and unlike those of all non-human animals, are prompted by mental representations that have their source in the intersubjective domain of society. Yet apart from the construction of tools and shelters (corresponding to the fourth and fifth kinds of materiality), these representations are not inscribed in the substrate of nature. Hunter-gatherers have a history, but theirs is a history that is written neither in the pages of documents nor upon the surface of the land. Overturning the classical conception of hunter-gatherers as arch-representatives of

humanity in the state of nature, Godelier reaches the rather paradoxical conclusion that it is in their societies that the boundary between culture and nature, the mental and the material, is most clear-cut. The more that the material world is subordinated to the ends of art, the more that it is 'humanized', the more the nature/culture boundary is dissolved (1986: 4).

The second problem is one to which Godelier alludes in a footnote, but fails to take further. It is that for most non-Western people, 'the idea of a transformation of nature by human beings has no meaning' (1986: 2, fn. 1). Thus the peoples of the past who were initially responsible for domesticating plants and animals almost certainly had quite different ideas about what they were doing. This is not the place for speculation about what those ideas might have been. The point I want to stress at this juncture is merely that the idea of production as consisting in the human transformation of nature, like the ideas of nature itself and of society as an entity counterposed to nature, has a history of its own during a particular period in a particular part of the world. By tracing this history back to its roots we may find that these ideas have grown out of a set of understandings very different from those familiar to us today, yet much closer to the apparently exotic cosmologies of non-Western 'others'.

It is beyond the scope of this article to document the history of Western thinking about humanity and nature (Glacken's [1967] massive treatise on the subject remains unsurpassed). Suffice it to say that the essence of the kind of thought we call 'Western' is that it is founded in a claim to the supremacy of human reason. Entailed in this claim is a notion of making things as an imprinting of prior conceptual design upon a raw material substrate. Human reason is supposed to provide the form, nature the substance in which it is realized. This idea was the fulcrum of Marx's theory of value, according to which it was the work of shaping up the material from its raw to its final state that bestowed value on what was already 'given' in nature. It made no difference, in principle, whether that work was represented by the labor of the artisan, in the manufacture of equipment, or by that of the farmer or stockbreeder, in the husbandry of plants and animals. Both were conceived as instances of productive making – the human transformation of nature.

Yet in arriving at his theory of value, Marx turned on its head an older idea, most fully developed in the writings of the French Physio-

crats, Quesnay and Turgot, in the eighteenth century. For these writers too, the role of the artisan was to imprint a rational design upon material supplied by nature. But in doing so, he created no new value. To the contrary, his work was understood to involve nothing more than a rearrangement of what nature had already brought into existence. The real source of wealth, according to Physiocracy, was the land, and lay in its inherent fertility. And for this reason, the activities of those who worked the land, in growing crops and raising animals, were understood to be fundamentally different in character from the activities of those whose tasks lay in the field of manufacture.

In an elegant analysis, Gudeman (1986: 80–84) has shown how the economic doctrines of Physiocracy were closely modeled on the theory of perception and cognition proposed some seventy years previously by John Locke. In Locke's economy of knowledge, the natural world is a source of raw sensations impinging upon the receptor organs of the passive human observer. The mind then operates on these received sensory data, separating and combining them to form complex ideas. In just the same way, according to the Physiocrats, the land furnishes its inhabitants with basic raw materials, to which human reason adds form and meaning. As Gudeman puts it, 'in this "intellectual" economics, agriculture is to artisanship as sensation was to mental operation' (1986: 83). The role of the farmer is to receive the substantive yield of the land, that of the artisan is to deliver the formal designs of humanity. Where the farmer's work is productive, in that it results in an influx of wealth to the human community, it is nevertheless passive since the creative agency in bringing forth this wealth was attributed to the land itself and, behind that, to divine intervention. Conversely the artisan's work is non-productive, since it adds nothing to human wealth, but is nevertheless active since it is impelled by human reason (Gudeman 1986: 87).

In this view, although it would still be fair to describe the act of making things as a human transformation of nature, such making is not the equivalent but the very **opposite** of production, just as artisanship is the opposite of agriculture. Production is a process of growing, not making. The farmer, and for that matter the raiser of livestock, submits to a productive dynamic that is immanent in the natural world itself, rather than converting nature into an instrument to his own purpose. Far from 'impressing the stamp of their will upon the earth', to adopt Engels's imperialistic phrase (1934: 179), those who

toil on the land – in clearing fields, turning the soil, sowing, weeding, reaping, pasturing their flocks and herds, or feeding animals in their stalls – are assisting in the reproduction of nature, and derivatively of their own kind.

In classical Greece, too, agriculture and artisanship were clearly opposed, belonging – as Vernant remarks (1983: 253) – 'to two different fields of experience which are to a large extent mutually exclusive'. The contrast between growing things and making things was delightfully phrased by the Sophist author Antiphon, writing in the fifth century BC, who invites us to imagine an old wooden bed, buried in the ground, taking root and sprouting green shoots. What comes up, however, is not a new bed, but fresh wood! Beds are made, but wood grows (Vernant 1983: 260). As a grower of crops rather than a maker of artifacts, the farmer was not seen to act upon nature, let alone to transform it to human ends. Work on the land was more a matter of falling into line with an overarching order, at once natural and divinely ordained, within which the finalities of human existence were themselves encompassed. Even were it technically possible to transform nature, the very idea would have been regarded as an impiety (Vernant 1983: 254).

If there is a certain parallel here with the doctrines of Physiocracy, despite the immense lapse of time, it is doubtless because both classical Greek and eighteenth century Physiocratic authors were able to draw on a fund of practical experience in working on the land. When it came to farming, they knew what they were talking about. But with regard to artisanship, their respective notions could not have been more different. For according to classical Greek writers, the forms which the artisan realized in his material issued not from the human mind, as constructs of a rational intelligence, but were themselves inscribed in the order of nature. Thus the idea of making as an imposition of rational design upon raw material would have been entirely alien to Greek thought. 'The artisan is not in command of nature; he submits to the requirements of the form. His function and his excellence is ... to obey' (Vernant 1983: 294). This, of course, is the precise inverse of Godelier's assertion that in the husbandry of plants and animals, in making tools and constructing buildings – that is, in the production of the third, fourth and fifth kinds of materiality – it is nature that submits to the requirements of human form. The idea that production consists in action **upon** nature, issuing from a superior source in society, is an essentially modern one.

THE ORGANISM AND THE PERSON

With that, we can return to the distinction between evolution and history. Insofar as this, too, rests on the dualism of reason and nature, it is also a product of the structure of modern thought. By the same token that reason is supposed to have broken through the barriers of nature, so it is assumed that there is more to being human than can be comprehended within an exhaustive biological account of the nature and functioning of the organism. Indeed it is precisely by this 'excess' that we are inclined to define the scope of our common humanity. Whereas an animal such as an elephant or a chimpanzee is all organism, the human being is held to be an organism **plus** (Collins 1985): its organic nature is supposedly 'topped up' with some additional factor – call it mind or self-awareness – that can be found not by external observation but only by the knowledge we have of ourselves as **persons** with specific identities, feelings, memories and intentions. And if history is about the changing forms of human subjectivity, as distinct from evolutionary changes in the objective, species-specific form of the organism, then it follows that the person exceeds the organism by precisely the same measure that history exceeds evolution.

The notion that the life of persons is conducted in an intersubjective world over and above that of the life of organisms – that it is an essentially **social** life – is as central to anthropology as it is to modern thought in general, underwriting as it does the conventional division between social and biological branches of the discipline. For a long time my own thinking followed the same lines. I felt sure that the models and theories developed by evolutionary biologists to account for the properties of organisms and their relations with their environments must apply as well to the human as to any other species, yet it was also clear that these models left no space for what seemed to be the most outstanding characteristic of human activity – that it is intentionally motivated. Human intentions, I argued, are constituted in the social domain of relations among persons, as distinct from the domain of ecological relations in which human beings, as individual organisms, related to other components of the natural environment. The problem, then, was to understand the reciprocal interplay between these two domains, social and ecological (Ingold 1986: 9).

As time went on, however, I became increasingly dissatisfied with this approach, with its inherent dualisms, its disembedding of social relations from the overall matrix of human relations with the environment, and its implicit appeal to an essentialist notion of human uniqueness. It eventually dawned on me, in something close to a moment of revelation, that organisms **are** persons: 'the human being, then, is not two things but one, not an individual **and** a person, but, quite simply, an organism' (Ingold 1990: 220). One cannot, I concluded, distinguish the process by which human beings take on the attributes of personhood in the course of social life from the process of ontogenetic development of the human organism in its environment. This conclusion, once reached, seemed so obvious that I wondered why it had evaded me for so long. On reflection, I think it was because I had taken the structure of modern evolutionary theory more or less 'on trust'. To defend my view of the organism-person, I now realize, will require nothing less than a radical revision of contemporary biological thought. In this article I can do no more than sketch an outline of the form this revision might take.

If the elephant or the chimpanzee is 'all organism', so too is the human being. We are all too easily misled, however, by a tendency to regard the animal, by comparison with the human, as a 'mere' organism. Indeed modern biological science encourages us in this belief, for the image of the organism it has bequeathed to us is a peculiarly impoverished one. It depicts organic life as a passive rather than an active process, in which the organism reacts according to a genetically pre-specified program to the given conditions of its environment. With this view, personal powers – of awareness, agency and intentionality – can form no part of the organism **as such**, but must necessarily be 'added on' as capacities not of body but of mind, capacities that modern thought, as we have seen, has traditionally reserved for human beings. Even today, now that the possibility of non-human animal awareness has arisen as a legitimate topic of scientific speculation, the basic dualism of mind and body is retained – for the question is phrased as one about the existence of animal **minds** (Griffin 1984). Consciousness, then, is understood as the life of the mind, as distinct from that of the organism to which it belongs.

In my view, to the contrary, there is nothing in the least 'mere' about being an organism. For organic life, as I conceive of it, is active rather than passive, open-ended rather than pre-programmed,

the creative unfolding of a total field of relations within which beings emerge and take on the particular forms they do, each in relation to the other. Life, in this view, is not the revelation of pre-specified forms but the very process wherein forms are generated (Ingold 1990: 215). It follows, however, that there can be no specification of the form of an organism that is independent of the developmental context within which it comes into being. Now the possibility of such a context-independent specification is an essential condition for Darwinian theory, since it is this specification – the genotype – that is said to undergo evolution through changes in the frequency of its information-bearing elements, the genes. Moreover it is in terms of the genotypic specification that organisms are assigned to species. Thus according to orthodox theory, species evolve as genotypes change.

If on the other hand, as I maintain (with Oyama 1985), organic form is an emergent property of developmental systems, then the evolution of form lies not in changing gene frequencies but in the unfolding of a total relational field. And in this process, organisms can play their part as producers as well as products of their own evolution, contributing through their actions to the environmental conditions both for their own development and for that of other organisms to which they relate. Every being, as it is caught up in the process and carries it forward, arises as an undivided centre of awareness and agency: an enfoldment, at some particular nexus within it, of the generative potential that is life itself. We do not, then, have to think of mind or consciousness as something added on to 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 Whitehead (1929: 314) called a 'creative advance into novelty'.

MAKING SOCIETY AND GROWING PEOPLE

Taking this view as my starting point, I should now like to return to the key concepts, of production and history, in order to see where this alternative approach might lead us.

When Engels declared that 'the most that the animal can achieve is to **collect**; man **produces**' (1934: 308), he wrote from the perspective of one whose experience lay in manufacturing industry, and for whom the notion of production would have referred in the first place

to the act of 'making things' – in other words to the construction of artificial objects through a process of transforming natural raw materials. Had his background been in agriculture rather than industry he might have recognized the peculiarity of applying such a notion to the production of food. For as every farmer knows, agricultural produce is not made, it is grown. To understand production as a process of growth is to go back to a much older sense of the term, though one that is still in common use. To produce, in this latter sense, is to 'bring forth'. Farmers, thus, assist in bringing forth the yield of the land. The work that they do, in such activities as field clearance, fencing, planting, weeding and so on, or in tending their livestock, does not literally make plants and animals, but rather establishes the environmental conditions for their growth and development.

Different regimes of plant and animal husbandry can, I think, best be distinguished in terms of the ways in which human beings involve themselves in establishing these conditions for growth. To grasp this idea, all that is required is a simple change of perspective: instead of thinking about plants or animals as part of the natural environment for human beings, we have to think of humans and their activities as part of the environment for plants and animals. But behind this switch there lies a point of much more fundamental significance. If human beings on the one hand, and plants and animals on the other, can be regarded alternately as components of each others' environments, then we can no longer think of the former as inhabiting a social world of their own, over and above the world of nature in which the lives of all other living things are contained. Rather, both humans and the animals and plants on which they depend for a livelihood must be regarded as fellow participants in the same world. And the forms that all these creatures take are neither given in advance nor imposed from above, but emerge within the relational contexts of this mutual involvement. In short, human beings do not, in their productive activity, transform the world; instead they play their part, alongside beings of other kinds, in the world's transformation of itself. It is to this process of self-transformation that I refer by the concept of growth.

What becomes, then, of the notion of history? Let us suppose that the work of human beings, throughout history, has consisted in growing rather than making. Now it is clear that humans play their part in establishing the conditions of growth not only for plants and animals, but for fellow human beings as well. Indeed we could reasonably

define human history as the process wherein the people of each generation, through their life-activities, furnish the developmental contexts within which their successors grow to maturity. Defined in this way, however, human history turns out to be but one part of an evolutionary process which, as I have argued above, is going on throughout the organic world (Ingold 1995: 203). The conventional distinction between history and evolution is thus dissolved.

The consequences of this dissolution are startling. For it puts paid to the idea that throughout the course of history, conceived as a **social** process, human beings have remained **biologically** the same, universally equipped with a set of structures and dispositions established through a process of evolutionary adaptation in the Pleistocene era. We have to recognize that human differences are indeed biological, in the sense that the particular skills, capacities and dispositions that people have brought to bear in their lives, in different times and places, are developmentally embodied – in specific aspects of neurology, musculature, even anatomy – through the experience of growing up in particular environments.

There is, then, no essential form of humanity, no way of saying what a human being **is**, apart from the manifold ways in which human beings **become** (Ingold 1991: 359). I should stress that this is not an argument for the priority of nurture over nature. Most biologists vehemently insist that the nature/nurture opposition is obsolete, yet it obstinately refuses to go away precisely because it is reproduced in the founding assumptions of their theory (Oyama 1985: 26). This theory, as we have seen, depends upon the notion that the development of any organism – human or non-human – is underwritten by a pre-existing (i.e. genotypic) specification of form. In denying the reality of the human genotype I do not mean to suggest that human beings are shaped instead by the given conditions of their environment. My point is that the metaphor of shaping, with its implication that form already exists, whether in the genes or in the environment, as a template, program or design prior to its realization in the material, is inappropriate to describe the process of growth by which the characteristics and capacities of persons are constituted in the course of their lives.

This is no less true with regard to the processes of formation of the environment. I have shown how, in the conventional account, the environment stands as substance to the historical forms of culture,

which in turn stand as content to the ahistorical form of human nature. In this account, every environment is sequentially shaped and reshaped through the imprint of one scheme of mental representations after another, each reshaping covering over or obliterating the one before. The material surface of nature is thus supposed to present itself as a palimpsest for the inscription of cultural form. My argument suggests, to the contrary, that the forms of environmental objects, like the forms of organisms themselves, are not superimposed upon a natural substrate but rather emerge in and through a process of growth. Or to put it in another way, they are crystallizations of activity within a relational field. To grasp this point, one need only think of all the activity that goes on, for example, in building a house. There may have been a building plan, but as a concrete presence in the environment, the house arises from the work of its builders, not from the plan. Nor is the building ever complete, for as long as the house is **there** it will inevitably be caught up in relations with its surroundings, both human and non-human. (It is worth recalling that every human house contains a great many more non-human inhabitants than we normally see or care to know about, and that their impact upon its developing form can be far from negligible.)

More generally, environments are continually coming into being through the activities of the creatures, human and non-human, whose environments they are (Ingold 1992: 50). This is a point, however, that tends to be obscured by a pervasive opposition, heavily institutionalized in Western society, between **design** and **implementation**. By attributing form to prior design we privilege the intellectual process of reason over the process of our bodily engagement with the environment, thus denying the creativity of that very process wherein forms actually come into existence. It is the same in Darwinian biology, where every organism is seen as the incarnation of a prefigured solution to a particular design problem – though the solution is attributed, in this case, to natural selection rather than rational choice. Yet what is natural selection, if not the image of human reason reflected back to the observing scientist, as he or she gazes into the mirror of nature?

CONCLUSION

Let me return, finally, to Godelier's five kinds of materiality, distinguished – it will be recalled – according to the manner and ex-

tent of human involvement in their existence. In what way does Godelier's formulation differ from our own? The answer is that for Godelier, the formative role of humans lies in their capacity as beings who, to various degrees, act **upon**, intervene **in**, or do things **to**, a domain of nature that is external to their socially constituted selves. According to the argument I have presented, by contrast, human beings do not transform the material world. Rather, as beings whose very existence depends upon their situation **within** the world, their activities are part and parcel of the world's self-transformation, its autopoiesis. In this view, nature is not a surface of materiality upon which human history is inscribed; rather history is the process wherein both people and their environments are continually coming into being, each in relation to the other. This is one way of interpreting Marx's celebrated yet enigmatic remark that 'history itself is a **real** part of **natural history** – of nature developing into man' (Marx 1964: 143, original emphases). By the same token, it is also man developing into nature. Or in other words, to conclude, human actions in the environment are better seen as incorporative than inscriptive, in the sense that they are built or enfolded into the forms of the landscape and its living inhabitants by way of their own processes of growth.

NOTE

This paper was first presented at the International Colloquium in honour of Maurice Godelier, held at the International Culture Centre, Cerisy-la-Salle, France, in June 1996, and is published (in French) in the proceedings of the colloquium (Descola, P., Hamel, J., and Lemonnier, P. (ads.), *La Production du Social: Autour de Maurice Godelier* (pp. 131–146). Paris: Fayard, 1999. The paper draws substantially on material I have published elsewhere, notably in Ingold (1996a, 1996b, 2000).

REFERENCES

Collins, S.

1985. Categories, Concepts or Predicaments? Remarks on Mauss's Use of Philosophical Terminology. In Carrithers, M., Collins, C., and Lukes, S. (eds.), *The Category of the Person: Anthropology, Philosophy, History* (pp. 46–82). Cambridge: Cambridge University Press.

Cook, S.

1973. Production, Ecology and Economic Anthropology: Notes to-

wards an Integrated Frame of Reference. *Social Science Information* 12: 25–52.

Darwin, C.
1871. *The Descent of Man and Selection in Relation to Sex*. London: John Murray.

Engels, F.
1934. *Dialectics of Nature*, trans. from German by C. Dutt. Moscow: Progress.

Glacken, C. J.
1967. *Traces on the Rhodian Shore*. Berkeley: University of California Press.

Godelier, M.
1986. *The Mental and the Material*, trans. M. Thom. London: Verso.
1989. Incest Taboo and the Evolution of Society. In Grafen, A. (ed.), *Evolution and Its Influence* (pp. 63–92). Oxford: Clarendon Press.

Griffin, D.
Animal Thinking. Cambridge, MA: Harvard University Press.

Gudeman, S.
1986. *Economics as Culture*. London: Routledge and Kegan Paul.

Huxley, T. H.
1874. *Man's Place in Nature, and Other Essays*. London: Macmillan.

Ingold, T.
1986. *The Appropriation of Nature: Essays on Human Ecology and Social Relations*. Manchester: Manchester University Press.
1990. An Anthropologist Looks at Biology. *Man* 25: 208–229.
1991. Becoming Persons: Consciousness and Sociality in Human Evolution. *Cultural Dynamics* 4: 355–376.
1992. Culture and the Perception of the Environment. In Croll, E. and Parkin, D. (eds.), *Bush Base: Forest Farm. Culture, Environment and Development* (pp. 39–56). London: Routledge.
1995. 'People like Us': the Concept of the Anatomically Modern Human. *Cultural Dynamics* 7: 187–214.
1996a. Growing Plants and Raising Animals: An Anthropological Perspective on Domestication. In Harris D. R. (ed.), *The Origins and Spread of Agriculture and Pastoralism in Eurasia* (pp. 12–24). London: UCL Press.
1996b. Life beyond the Edge of Nature? Or, the Mirage of Society. In Greenwood, J. D. (ed.), *The Mark of the Social.* New York: Rowman and Littlefield.

Marx, K.
1930. *Capital*, vol. 1. London: Dent.
1964. *The Economic and Political Manuscripts of 1884*. New York: International Publishers.

Marx, K. and Engels, F.
1977. *The German Ideology*. London: Lawrence and Wishart.

Mellars, P. and Stringer, C. (eds.)
1989. *The Human Revolution: Behavioural and Biological Perspectives on the Origins of Modern Humans*. Edinburgh: Edinburgh University Press.

Oyama, S.
1985. *The Ontogeny of Information: Developmental Systems and Evolution*. Cambridge: Cambridge University Press.

Premack, D.
1994. Why Animals Have neither Culture nor History. In Ingold, T. (ed.), *Companion Encyclopedia of Anthropology: Humanity, Culture and Social Life* (pp. 350–365). London: Routledge.

Vernant, J. P.
1983. *Myth and Thought among the Greeks*. London: Routledge & Kegan Paul.

Whitehead, A. N.
1929. *Process and Reality: an Essay in Cosmology*. Cambridge: Cambridge University Press.