

Chapter Five

Making things, growing plants, raising animals and bringing up children

We have . . . large and various orchards and gardens . . . And we make (by art) in the same orchards and gardens trees and flowers to come earlier or later than their seasons, and to come up and bear more speedily than by their natural course they do. We make them also by art greater much than their nature, and their fruit greater and sweeter and of differing taste, smell, colour and figure, from their nature . . . We have also parks and inclosures of all sorts of beasts and birds . . . By art likewise we make them greater or taller than their kind is, and contrariwise dwarf them, and stay their growth; we make them more fruitful and bearing than their kind is, and contrariwise barren and not generative. Also we make them differ in colour, shape, activity, many ways.

So wrote Francis Bacon in 1624, outlining his Utopian vision of the *New Atlantis*, a society dedicated to the mastery of nature through rigorous application of the principles of rational science (Bacon 1965: 449–50). In this society every kind of living thing, both animal and vegetable, can be *made by art* so that it better serves human purposes. In what follows I aim to show how this notion of making has come to rest at the heart of what we mean by production, in relation not only to the manufacture of artefacts but also, and more especially, to the breeding – or ‘artificial selection’ – of plants and animals. The idea of production as making, I argue, is embedded in a grand narrative of the human transcendence of nature, in which the domestication of plants and animals figures as the counterpart of the self-domestication of humanity in the process of civilisation. I go on to consider how people who actually live by gardening, tilling the soil or keeping livestock understand the nature of their activity, drawing on examples from South America, Melanesia and West Africa. Taking these understandings as a starting point, I shall then take a fresh look at what it means to cultivate plants and to husband animals. My conclusion is that the work of the farmer or herdsman does not *make* crops or livestock, but rather serves to set up certain conditions of development within which plants and animals take on their particular forms and behavioural dispositions. We are dealing, in a word, with processes of *growth*.

THE HUMAN TRANSFORMATION OF NATURE

According to the received categories of archaeological and anthropological thought, there are basically just two ways of procuring a livelihood from the natural environment, conventionally denoted by the terms *collection* and *production*. The distinction between them was first coined by Friedrich Engels. In a note penned in 1875, Engels pointed to production as the most fundamental criterion of what he saw as a kind of ‘mastery’

of the environment that was distinctively human: 'The most that the animal can achieve is to *collect*; man produces, he prepares the means of life . . . which without him nature would not have produced. This makes impossible any unqualified transference of the laws of life in animal society to human society' (1934: 308). The essence of production, for Engels, lay in the deliberate planning of activity by intentional and selfconscious agents. Animals, through their activities, might exert lasting and quite radical effects on their environments, but these effects are by and large unintended: the non-human animal, Engels thought, did not labour in its surroundings *in order* to change them; it had no conception of its task. The human, by contrast, always has an end in mind.

Curiously, however, whenever Engels turned to consider concrete examples of human mastery in production, he drew them exclusively from the activities of agriculture and pastoralism, through which plants, animals and the landscape itself had been demonstrably transformed through human design (1934: 34, 178–9). Opposing the foraging behaviour of non-human species to the human husbandry of plants and animals, Engels left a gap that could only be filled by calling into being a special category of humans known to him and his contemporaries as 'savages'. As a hunter of animals and a gatherer of plants, the savage had, as it were, come down from the trees but had not yet left the woods: suspended in limbo between evolution and history, he was a human being who had so far failed to realise the potential afforded by his unique constitution. Ever since, the humanity of hunter-gatherers has been somehow in question. They may be members of the species, *Homo sapiens*, but their form of life is such as to put them on a par with other animal kinds which also derive their subsistence by collecting whatever is 'to hand' in the environment. As the archaeologist Robert Braidwood wrote in 1957, 'a man who spends his whole life following animals just to kill them to eat, or moving from one berry patch to another, is really living just like an animal himself' (Braidwood 1957: 22).

This latent ambiguity also allowed the archaeologist, V. Gordon Childe, to take up the distinction between collection and production – in terms virtually identical to those proposed by Engels – to draw a line not between humans and animals, but between 'neolithic' people and their successors on the one hand, and 'palaeolithic' hunters and gatherers on the other. In crossing this line, the ancestors of present-day farmers, herdsmen and urban dwellers were alleged to have set in motion a revolution in the arts of subsistence without parallel in the history of life. Ushered in by the invention of the science of selective breeding, it was a revolution that turned people, according to Childe, into 'active partners with nature instead of parasites on nature' (1942: 55). Though contemporary authors might phrase the distinction somewhat differently, the notion of food-production as the singular achievement of human agriculturalists and pastoralists has become part of the stock-in-trade of modern prehistory. And understanding the origins of food-production has become as central a preoccupation for prehistorians as has understanding the origins of humankind for palaeoanthropologists: where the latter seek the evolutionary origins of human beings *within* nature, the former seek the decisive moment at which humanity *transcended* nature, and was set on the path of history.

Underlying the collection/production distinction, then, is a master narrative about how human beings, through their mental and bodily labour, have progressively raised themselves above the purely natural level of existence to which all other animals are confined, and in so doing have built themselves a history of civilisation. Through their transformations of nature, according to this narrative, humans have also transformed themselves. It is a fact about human beings, states Maurice Godelier, that alone among animals, they '*produce society in order to live*' – and in so doing, 'create history' (1986: 1, original

emphases). By this he means that the designs and purposes of human action upon the natural 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 ('representations, judgements, principles of thought') that stands over and above the sheer materiality of nature (1986: 10–11).

Godelier goes on to distinguish five 'kinds of materiality', depending upon the manner and extent to which human beings are implicated in their formation. First is 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 taken 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. 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, so far as possible, unscarred by human activity. If, as Godelier claims, '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, he asserts, are like those of all human beings at all times, and unlike those of all non-human animals, in that they are prompted by mental representations that have their source in the inter-subjective 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 materialised in the physical 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. It is inscribed exclusively upon the plane of mental rather than material reality. 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 the mental and the material, between culture and nature, is most clearcut. The more that the material world is subordinated to the ends of art, the more the world of ideas is rendered in physical form, the less clearcut the nature/culture distinction appears to be (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 must have had quite different ideas about what they were doing. In the next section I shall present a range of comparable ideas drawn from the ethnography of contemporary non-Western societies.

The point to stress at this juncture is that the idea of history 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 in the Western world. By tracing this history back to its roots we may find that it has 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 chapter to document the history of Western thinking about humanity and nature (Glacken's [1967] massive treatise on the subject remains unsurpassed). Suffice it to note that the essence of the kind of thought we call 'Western' is that it is founded in a claim to the subordination of nature by human powers of 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 realised. We have already encountered this idea of making in the writings of Bacon, but more than two hundred years later it served as 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 labour of the artisan, in the manufacture of equipment, or by that of the farmer or stock-breeder, 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 idea of even greater antiquity, though one whose systematic elaboration had to await the writings of the French Physiocrats, 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, Stephen Gudeman (1986: 80–4) has shown how the economic doctrines of Physiocracy were closely modelled 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 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 artefacts, 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 realised 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.

INDIGENOUS UNDERSTANDING: FOUR ETHNOGRAPHIC EXAMPLES

Our next step is to turn to consider some of the ways in which contemporary non-Western people understand their relations with cultivated plants and domestic animals. In what follows I shall present four ethnographic examples. The first is taken from Philippe Descola’s (1994) study of the Achuar Indians of the Upper Amazon, the second draws on Marilyn Strathern’s (1980) work on the people of the Mount Hagen region of the Papua New Guinea Highlands, and the third comes from a study by Walter van Beek and Pieteke Banga (1992) of the Dogon of Mali, in West Africa. For my fourth and final example I return to South America, and to the study by Stephen Gudeman and Alberto Rivera (1990) of the peasant farmers of Boyacá, in Colombia.

The Achuar of the Upper Amazon

The Achuar cultivate a great variety of plant species, of which the most ubiquitous is manioc, in gardens that have been cleared through a 'slash-and-burn' technique from primary forest. The focus of domestic life is the house, which stands at the centre of its garden, surrounded in turn by a vast expanse of forest. Though a man is expected to prepare a garden plot for each of his wives, the cultivation, maintenance and harvesting of plots is exclusively women's work. All members of the household regularly participate in gathering activities, which are concentrated in familiar areas of the forest within close reach of the garden. Beyond that is the zone of hunting, a risky space in which men dominate, and to which women venture only when accompanied by their husbands.

Gathering, for the Achuar, is a relaxed affair – an occasion for a pleasant day out. But hunting is a quite different matter. Men's relations with the animals they hunt are modelled on the human relation of affinity: like human in-laws, the creatures of the forest are inclined to be touchy, and their feelings have continually to be assuaged with liberal doses of seductive charm. Above all, it is necessary to keep on the right side of the 'game mothers', the guardian spirits of the animals, who exercise the same kind of control over their charges as do human mothers over their own children and domestic animals (Descola 1994: 257). Motherhood, however, also extends to a woman's relations with the plants she grows in her garden. She has, as it were, two sets of offspring, the plants in her garden and the children in her home, and since the two are in competition for the nurturance she can provide, relations between them are far from harmonious. Manioc, for example, is attributed with the power to suck the blood of human infants. Thus despite its peaceful appearance, the garden is as full of menace as is the surrounding forest (1994: 206).

Applying orthodox concepts of anthropological analysis, we might be inclined to oppose the forest and the garden along the lines of a distinction between the wild and the domesticated, as though the edge of the woods also marked the outer limits of the human socialisation of nature, and the point of transition at which production gives way to collection. But this, as Descola shows, would be profoundly at odds with Achuar understandings. For in the construction and maintenance of their gardens, the Achuar do not see themselves as engaged in a project of domesticating the pristine world of the forest; indeed the colonial image of the conquest of nature is entirely foreign to their way of thinking. For them, the forest is itself a huge garden, albeit an untidy one, and the relations between its constituents are governed by the same principles of domesticity that structure the human household, yet on a superhuman scale. The tension between garden plants and children mirrors, on a reduced scale, the tension between forest creatures and human hunters; likewise a woman's care for her crops and domestic animals is writ large in the care of the 'game mothers' for the species in their charge. In short, the Achuar garden figures as a microcosm of the forest: 'it is not so much the cultural transformation of a portion of wild space as the cultural homology in the human order of a cultural reality of the same standing in the superhuman order'. Human society is a scaled-down version of the society of nature, the garden plot 'temporarily realizes the virtualities of a homely wilderness' (Descola 1994: 220).

The people of Mount Hagen

The people of the Mount Hagen region of Papua New Guinea (henceforth 'Hageners') grow crops – especially taro, yams and sweet potato – in forest clearings; they also raise

pigs. They have a word, *mbo*, for the activity of planting, which is also used for things that are planted such as cuttings pushed into the ground. By extension it can refer to any other point of growth within the general field of human relations: thus a breeding pig can be *mbo* in respect of the herd it will engender, and people can be *mbo* in respect of their placement in clan territory. The antithesis of *mbo* is *romi*. This latter term is used for things or powers that lie beyond the reach of human nurture. The principal cultivated tubers have their wild counterparts, and these are *romi*, as are wild pigs and other forest creatures. There are also *romi* spirits who tend these wild plants and animals, just as people tend their gardens and pigs (Strathern 1980: 192). Indeed at first glance, the terms *mbo* and *romi* seem to have their more or less exact equivalent in our conventional notions of 'wild' and 'domestic' respectively.

Completely absent from the Hagen conception, however, is the notion of a domestic environment 'carved out' from wild nature. *Mbo* does not refer to an enclosed space of settlement, as opposed to the surrounding bush or forest. Hageners do not seek to subjugate or colonise the wilderness; while the spirit masters of forest creatures have their spheres of influence as humans have theirs, the aim is 'not to subdue but to come to terms with them' (1980: 194). *Romi* is simply that which lies outside the limits of human care and sociability. Significantly, while the opposed term *mbo* takes its primary meaning from the act of planting, it is not used for any other stage of the horticultural process, nor for garden land itself (1980: 200). In planting one does not transform nature, in the sense of imposing a rational order upon a given materiality. Rather, one places a cutting in the ground so that it may take root and grow.¹ As its roots extend into the soil, so the plant draws nourishment from its environment, gradually assuming its mature form.

Like the Achuar, Hageners draw a parallel between growing plants and growing children. The child, placed at birth within a field of nurture – as the plant is placed in the soil – steadily grows into maturity as a responsible, self-aware being, drawing sustenance from its relationships with others even as the latter, like the plant's roots, extend ever further outwards into the social environment (1980: 196). There is no sense, however, in which the child starts life as a thing of nature, to which a moral dimension of rules and values is added on through a process of socialisation. The child does not begin as *romi*, and become *mbo*. It is *mbo* from the outset, by virtue of its planting within the field of human relationships. So too, in their cultivation of tubers and raising of pigs, Hageners do not impose a social order upon an environment consisting of 'nature in the raw'. They rather constitute, as inherently social, the very environment within which their plants and animals come into being, take root and grow to maturity.

The Dogon of Mali

Like many other African peoples (Morris 1995: 305–6), the Dogon draw a sharp contrast between the categories of *ana* (village) and *oru* (bush). In and around the village, people cultivate the staple crop of millet, and keep gardens of onions and tobacco. But they also depend on the bush in many ways. It is a source of firewood for cooking, brewing and firing pottery. Timber is needed, too, for building houses and granaries, and for fencing gardens. The bush also yields meat, relishes and treefruits, leaves for use as cattle fodder, and various medicinal herbs. However, the dependence of the village on the bush goes much deeper than this list of products would indicate. For in the Dogon view, the bush is nothing less than the source of life itself, and with it of all knowledge, wisdom, power and healing. But by the same token, it is greatly to be feared. It is a zone of movement

and flux, in which all the fixedness and certainties of village life are dissolved. Everything shifts and changes – even trees and rocks can walk from place to place. The many spirits that roam the bush can exchange body parts with living people, human hunters venturing there become like the animals they hunt, and as they do so their existence in the present is swallowed up in a temporal horizon that merges past and future, life and death (van Beek and Banga 1992: 67–8).

Dogon cosmology envisages a kind of entropic system in which the maintenance of the village depends upon a continual inflow of vital force from the bush, which is worn down and used up in the process. If the village is a place of stability, where things stay put and proper distinctions are maintained, it is also a place of stagnation. In an almost exact inversion of the modern Western notion of food production as the manifestation of human knowledge and power over nature, here it is nature – in the form of the bush – that holds ultimate power over human life, while the cultivated fields and gardens are sites of consumption rather than production, where vital force is *used up*. 'Knowledge dissipates . . . and power evaporates unless reinvigorated from the bush' (van Beek and Banga 1992: 69).

Peasant farmers of Boyacá

The rural folk of Colombia say that it is the earth that gives them their food; the role of human beings is to assist it in bringing forth its crops. As one farmer is reported to have put it: 'Man helps the land; the earth produces the fruit' (Gudeman and Rivera 1990: 25). Likewise hens give eggs, sheep give lambs and cows calves. Here, too, the farmer is called upon to assist in the animals' labour much as a midwife assists at a birth. But the ultimate source of the 'strength' or 'force' (*la fuerza*) that enables people to work, animals to reproduce and crops to grow lies in the land itself. The earth is conceived as a repository of strength created and sustained by God (1990: 18). Thus crops draw strength from the land, humans in turn gain strength by consuming their crops (or the produce of animals whose strength was drawn from their consumption of fodder), and expend that strength in work on the land that enables it to yield up yet more of its strength to the cycle.

Gudeman and Rivera detect in this folk model distinct echoes of eighteenth-century Physiocracy. Indeed they go so far as to suggest that it offers a window on much earlier notions current among farming peoples of the Old World, which still resonate through the practices of Colombian rural folk as well as through the texts of European political economists. The Physiocratic view that only the land yields value, which the farmer harnesses on behalf of society, has its counterpart in the Colombian farmers' notion that human life is powered by the strength of the earth. Both views, moreover, invert the modern Western conception that sees in the land not an active agent but an inert source of raw materials to be shaped up to a human design. Marx wrote of the earth as foremost among the instruments of labour, and ever since we have tended to think of production as a process wherein land is placed in the service of humanity (Meillassoux 1972). But Colombian rural folk place themselves in the service of the land. And they regard their capacity to work not as some inner aspect of their being, as in the Marxian concept of 'labour-power', but as God's gift of strength, bestowed through the land and its produce, and expended in their activity (Gudeman and Rivera 1990: 103–4).

MAKING THINGS, FINDING THINGS AND GROWING THINGS

Let me now return to the opposition with which I began, between production and collection. There is no doubt that the primary meaning of production in the age of manufacture is, to recall Bacon's phrase, 'making by art'. The term refers, in other words, to the construction of artificial objects by rearranging, assembling and transforming raw materials supplied by nature. And if the opposite of 'to produce' is 'to collect', then collection must mean picking up one's supplies, as it were 'ready-made', from the environment. But how can you 'make' a pig, a yam, or a crop of millet? And how, for that matter, can such things be made in advance?

I believe this modern emphasis on production as making accounts for the special significance that tends to be attached to the so-called 'artificial selection' of plants and animals as the key criterion for distinguishing food-production from food-collection, and hence for determining the point of transition from hunting and gathering to agriculture and pastoralism. The ability that Bacon dreamed of, literally to 'make' an animal or plant in any way we want it, is only now coming to be realised due to developments in biotechnology and genetic engineering. For farmers and herdsmen of the past, it has never been a realistic possibility. What they could do, however, was isolate a breeding population within which they could select individuals for reproduction according to their conformity to an ideal type. Just as the distinction between the artefact and the naturally given object (such as a living organism) depends on the notion that the former is built upon a design that is extrinsic rather than intrinsic to the material (Monod 1972: 21), so likewise artificial selection can only be distinguished from natural selection on the grounds that it is guided by a 'preconceived end', an ideal suspended within the collective representations of the human community. This is probably why the notion of domestication has come to be so closely tied up with that of breeding: it is the closest thing to constructing the forms of plants and animals to blueprints of human design. And this, in turn, is why prehistorians investigating the origins of food-production are inclined to look for evidence of the morphological divergence of the plant or animal species in question from its original 'wild' form, as proof that production was going on.

This procedure, however, generates its own anomalies. For in many parts of the world, both in the past and still today, people are apparently engaged in the husbandry of plants and animals that do not differ appreciably from their wild counterparts. Kept as pets in the houses of the Achuar are a range of 'domestic wild animals' – various primates, birds and peccary (Descola 1994: 90). The forests of Highland New Guinea are full of wild domestic pigs, as well as a variety of plants that also appear in cultivated swiddens. And the fields of neolithic villagers in Southwest Asia were sown with 'domesticated wild barley' (Jarman 1972). Now the source of these anomalies lies in the very dichotomy between collection and production. In terms of this dichotomy, human beings must *either* find their food ready-made in nature *or* make it themselves. Yet ask any farmer and he or she will say, with good cause, that the produce of the farm is no more made than it is found ready-made. It is *grown*. So our question must be as follows. Granted that by making things we mean the transformation of pre-existing raw materials, *what do we mean by growing things?* On the answer to this question must hinge the distinctions between gathering and cultivation, and between hunting and animal husbandry.

Two common themes to emerge from the ethnographic cases presented in the previous section point towards a solution. First, the work that people 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. They are 'mothered', nurtured, assisted – generally cosseted and helped along. Secondly, growing plants and raising animals are not so different, in principle, from bringing up children. Of course it is true that modern Western discourse, too, extends the notions of cultivation and breeding across human, animal and plant domains, referring in the human case to a refinement of taste and manners (Bouquet 1993: 189–90). Such refinement, however, is represented as a socially approved form of mastery over supposedly innate human impulses, and is the counterpart to the kind of mastery over the environment that is implied by the notion of domestication as the social appropriation of nature. When Achuar women compare their children to the plants in their gardens, or when Hageners use the language of planting for both children and pigs, they do not have this model of socialisation in mind. As Strathern puts it: 'the child grows into social maturity rather than being trained into it' (1980: 196). What each generation provides, whether in growing plants, raising animals or bringing up children, are precisely the developmental conditions under which 'growth to maturity' can occur.²

Where does this leave the distinctions between gathering and cultivation, and between hunting and animal husbandry? The difference surely lies in no more than this: the *relative scope of human involvement in establishing the conditions for growth*. This is not only a matter of degree rather than kind, it can also vary over time. Weeds can become cultigens, erstwhile domestic animals can turn feral. Moreover a crucial variable, I would suggest, lies in the temporal interlocking of the life-cycles of humans, animals and plants, and their relative durations. The lives of domestic animals tend to be somewhat shorter than those of human beings, but not so short as to be of a different order of magnitude. There is thus a sense in which people and their domestic animals grow older together, and in which their respective life-histories are intertwined as mutually constitutive strands of a single process. The lives of plants, by contrast, can range from the very short to the very long indeed, from a few months to many centuries.

Now as Laura Rival has pointed out, the planned intervention in and control over nature that we conventionally associate with the idea of domestication can only be envisaged in respect of plants 'whose growth is much faster relative to human growth and maturation processes' (Rival 1993: 648). It is as though humans could stand watch over the development of their crops without growing significantly older themselves. But the more slow-growing and long-lived the plant, the more artificial this assumption appears to be. In the case of the most enduring plants of all – such as certain large trees – the assumption becomes wholly untenable. Indeed for the most part, trees do not fit at all comfortably within the terms of the orthodox distinction between the wild and the domesticated, which may account for the curious fact that despite their manifest importance to people (as our Dogon example shows), they are all but absent from archaeological and anthropological discussions of the nature and origins of food production. Of an ancient tree that has presided over successive human generations it would seem more appropriate to say that it has played its part in the domestication *of* humans rather than having been domesticated *by* them.³ In short, what is represented in the literature, under the rubric of domestication, as a transcendence and transformation of nature may be more a reflection of an increasing reliance on plants and animals that, by comparison with humans, are relatively fast-growing and short-lived.

I have suggested that regimes of plant and animal husbandry may best be distinguished in terms of the ways in which human beings involve themselves in establishing the conditions for growth. For example, in the cultivation of gardens, more is done to assist the

growth of plants than when they are gathered from the bush. To grasp this idea, all that is required is a simple switch of perspective: instead of thinking about plants 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. 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 humans 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, a world that is at once social and natural. And the forms that all these creatures take are neither given in advance nor imposed from above, but emerge within the context of their mutual involvement in a single, continuous field of relationships.⁴

With this conclusion in mind, let me return to Godelier's five kinds of materiality, which were also distinguished according to the manner and extent 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 so much transform the material world as play their part, along with other creatures, in the world's transformation of itself (I return to this formulation in Chapter Eleven, pp. 200–1). 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 bringing each other into being. 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, 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.

I have been concerned, in this chapter, to dissolve the conventional dichotomy between production and collection. In so doing, however, I seem to have ended up with another, equally intractable dichotomy, namely between making and growing. I have observed that in the tradition of Western thought, the idea of making – understood as the inscription of conceptual form upon material substance – has been extended from the manufacture of artefacts to the breeding of plants and animals, as exemplified in the passage from Bacon's *New Atlantis* with which I began. It has even been extended to the raising of children – insofar as this is regarded as a process of socialisation whereby approved norms and values are superimposed upon the raw material of new-born human infants. In every case it is supposed that a design or representation that has its source in the domain of society is imprinted upon the substrate of external nature. In arguing against this view, I have suggested that bringing up children or raising livestock, just as much as the cultivation of crops, is a process in which plants, animals or people are not so much made as grown, and in which surrounding human beings play a greater or lesser part in establishing the conditions of nurture.

I have but one further point to make in conclusion. The orthodox Western account, as we have seen, extends the idea of making from the domain of inanimate things to that of animate beings. I want to suggest, quite to the contrary, that the idea of growing might

be extended in the reverse direction, from the animate to the inanimate. What we call 'things', too, are grown. In practice, there is more to the manufacture of artefacts than the mechanical transcription of a design or plan, devised through an intellectual process of reason, onto an inert substance. For as I shall show in Chapter Eighteen, the forms of artefacts are not given in advance but are rather generated in and through the practical movement of one or more skilled agents in their active, sensuous engagement with the material. That is to say, they emerge – like the forms of living beings – within the relational contexts of the mutual involvement of people and their environments. Thus there is, in the final analysis, no absolute distinction between making and growing, since what we call 'making things' is, in reality, not a process of transcription at all but a process of growth.